THE NEW ENGLAND FARMER

DEVOTED TO AGRICULTURE, HORTICULTURE, AND KINDRED ARTS.

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NOVEMBER ASPECTS.

The earth mourneth and languisheth; Lebanon is ashamed and withereth away; Sharon is like a wilderness; and Bashan and Carmel shake off their fruit.—*Isaiah* 33: 9.

NATURE in her winter garb is well drawn by the inspired prophet in the above passage. He was in the habit of alluding to the varying aspects of nature for the purpose of increasing the force of his terrible maledictions against the people whose sins he was rebuking.

Last month we briefly adverted to the somewhat popular opinion that the autumn months are more unfriendly to kind and genial feelings than those of any other portion of the year. But *November* is not all high winds and cloudy skies. It has many pleasures, if we will lift up our matter-of-fact eyes, and find that there are matters-of-fact we seldom dream of. The fine days that come in the Indian summer, the new animal life about us, the flight of birds on their annual migration from north to south, and the delightful reunion of kindred and friends which has become so common at our Thanksgiving festival.

Mr. Beecher says, "we often hear people say, 'Oh, the dreary days of November!' The days of November are never dreary—though men sometimes are. There are suggestions in it that lead us to serious thoughts. We are apt, at that season of the year to feel that life is passing. After the days begin to grow short in summer, I cannot help sighing often; and as they still grow shorter and shorter, I look upon things, not with pain, but with a sad and melancholy eye. And when autumn comes, and the leaves of the trees drop down through the air and find their resting places, I cannot help thinking that life is short, that our work is almost ended, and that we are nearing the tomb. It makes me sad; but there is a sadness that is wholesome, and even pleasurable. There are sorrows that are not painful, but that are of the nature of some acids, and give piquancy and flavor to life; and such are the sorrows which November brings. That month which sees all the year disrobed, is not a dreary month. I like to see the trees go bed as much as little children, and I think there is nothing prettier in the world than to see a mother disrobe her child, and prepare its couch, and sing and talk to it, and finally lay it to rest. I like to see birds get ready for their repose at night. Did you ever sit at twilight and hear them talk of domestic matters, and go over, apparently, with each other, the troubles and joys of the day? There is an immense deal to learn from birds, if a person has an ear to hear. And so I like to see the year wound up. I like to see the trees with their clothes taken off. I like to see the hard lines of a tree. I like to see its anatomy. I like to see the preparation that God makes for winter. How

everything is snuggled and packed! How all nature gets ready for the cold season! How the leaves heap themselves upon the roots to protect from the frost! How all things toughen to stand the buffetings of the winter! And hardy vines and roots bravely sport bannered leaves, that the frost cannot kill, sending them up clear into the coldest days. November is a dreary month to some; it is sad to me; and it is a sweet sadness it brings to my mind."

"Farewell to Autumn and her yellow bowers,
Her waning skies and fields of yellow hue;
Farewell, ye perishing and perished flowers,
Ye shall revive when vernal skies are blue,
But now the tempest cloud of Winter lowers,
Frosts are severe, and snowflakes not a few;
Sifting their leafless boughs against the breeze,
Forlorn appear the melancholy trees."

If any there are to whom November brings a sadness which is not "sweet," they can dispel it by cultivating a love of Nature; by occupation in the garden, or in the green house; by reading about and making preparation for the pleasant duties in working among the soil in the coming Spring. If these fail there is one other resource that cannot fail, and that is, "*going about and doing good.*" There is no balm like this, no despondency that can withstand its attacks. It works radical and permanent cures—assuages real grief, even, and builds up the whole christian character.

WORK FOR NOVEMBER.

If the ground is not frozen, ploughing may be advantageously done this month. The teams are sturdy and strong, and so much will be done to help along the work in the hurry of spring. The turfs will be rotting in some degree, so that they will more readily impart their fertilizing properties to the corn plants growing upon them.

See that the asparagus bed is manured and that it is protected a little.

Protect such plants in the garden as need it.

Instead of earth against the house for banking up, rotting away the wood work, use evergreen branches, hemlock, or white or yellow pine. After the snow has been blown in among them, they will keep out frost far better than banks of earth. The labor of banking with brush will not be half that of using earth, in most cases, and they are altogether cleaner, while being more effectual.

The season has been so damp that some fields of corn have not thoroughly ripened. It will be necessary to stir it occasionally if spread upon the floor. If it is in airy bins it may be safe.

Feed all fattening animals liberally, and keep them dry and warm.

Do not allow the cattle to remain too late in the mowing fields, and feeding them until the grass roots are laid bare, and made liable to be winter-killed. This practice is an exceedingly injurious one. If less feeding and poaching our mowing fields were to take place, there would be less complaint of winter-killed grass in the spring.

Store away *peat* for use on the manure heaps through the winter. Every cord used will be a cord of the best manure in the spring, and will increase the crops wonderfully.

Ditch and drain that old meadow near the house. There is only a single acre of it, which, when well drained, will yield 3,000 pounds of the best hay annually, instead of the crop of frogs and skunk cabbage it has produced for the last forty years.

Gather up the potato, pumpkin and other vines, and mulch the peach trees, or other plants that need it.

In short, make some *permanent* improvement on the farm which is like so much cash put at interest.

FERTILITY.---SILEX, &c.

Science has demonstrated that in order to be fertile, a soil must contain all the mineral ingredients which are found by analysis to exist in the ashes of the plant, or plants, it is required to sustain; and that these must exist in such a state or under such conditions as to be at all times readily available to the roots, and in such profusion as to ensure an adequate supply being kept up during the period of their growth.

The texture of the soil must be neither too coarse nor too fine, but should consist of an intermixture of larger particles, with a due quantity of impalpable matter, so as to secure to it a degree of porosity, and render it easily penetrable by the fructifying principles of air, warmth and moisture; together with an ample provision of vegetable matter in a condition to undergo chemical changes, as the necessities or wants of the cultivated vegetables require.

With this texture and mineral constitution, the process of enrichment by the application of various decomposing animal or vegeta-

ble matters, will be comparatively easy. The necessity of these conditions to ensure fertility and productiveness is demonstrated by the well-known physiological fact, that plants do not possess the power of generating for, and of themselves, a single elementary particle of which they consist. They are only possessed of the capacity of modifying, to a certain extent, the form in which these particles are combined with each other. These facts are far too generally overlooked by the farmer.

When the cultivation of a particular plant proves unsuccessful on one species of soil, the observing cultivator tries it on another species —changing oftentimes from clay to sand, and from sand to clay. This method is frequently successful; the plant finding its proper aliment in its new location, grows, and produces its seed, well-developed and mature; but another, adopting the same migratory system, does not meet with the same result as the former. Hence chemical analysis is requisite to explain the difference in the results.

All clay soils are not produced from the same kind or sort of rocks. There may be, indeed, a wide difference in this important particular, and yet the eye be wholly unable to detect it. The same remarks hold equally good in regard to sandy lands. All soils are composed of the debris of rocks—old, rotten, broken rocks—or the disintegrated particles of them, which overspread the earth in the form of sand, gravel and clay.

Mould is formed by the addition of decaying vegetable or animal matter to these, and is "the half way house between the living and the dead in the organic and inorganic world."

By examining the subject critically, we find that nearly all the sand found on the earth's surface is derived from water-formed sandstone, or fire-formed granite and other rocks, marked by the characteristics indicating an igneous or fiery origin.

The purest sand known is denominated *silica*, a term derived from the Latin word silex, "*flint*." This is a simple mineral, possessing acid properties. It is produced by a chemical union of oxygen and *silicon* or *silicum*, in the proportions of two atoms of the former with one of the latter. It is sometimes called silicic acid, in consequence of the facility with which it combines with lime, soda, alumina, potash, magnesia and iron, to form the substances called *silicates*, such as silicates of potash, silicates of soda, lime, &c., &c.

Oxygen, it is well known, is the vital principle of the air, which supports respiration and combustion, &c.; and in sand derived from the pure flint or *silex*, we find there are, in every one hundred parts, by accurate measurement, fifty-two parts of oxygen and forty-eight of silicon. The quantity of oxygen, therefore, contained in rocks, is very great. It has been estimated by philosophers, that more than three-quarters—probably 80 per cent.—of *all* the rocks, are composed of silica; consequently more than one-half of the actual crust of the earth is oxygen.

If we burn the straw of wheat and analyze the ash remaining after deflagration, we shall find that 67 per cent. of the mass is silica. The same is true of sugar cane, the ash of barley, rye, oats and Indian corn, and the maize plant generally. Yet sand is but very sparingly soluble in water. The action of the roots of vegetables effects its decomposition, to a very limited extent, and slowly. Pure silica is not extensively found; a little is supplied by crystalized quartz or flint, but the great mass is composed almost entirely of the silicates of lime, alumina, potash, iron, magnesia, soda, and manganese. These silicates act with greater or less energy upon vegetation, and are, in part, the cause of fertility in soils. To render them soluble, and fit to assist in supporting cultivated crops, is the great object, or one of the objects, of manuring. Unless they be rendered appropriable, it is vain to expect a sound and well-developed crop; they constitute the *bones* of vegetables which can never attain vigor, or health, without them.

For the New England Farmer.

FEEDING STOCK.

Cutting Hay.

The questions have been asked in the FARMER, will it pay to cut good hay for stock? What are the real benefits of the practice?

Young farmers are often puzzled by the diversity of opinions and practice on this subject. The arguments sometimes advanced by the advocates of the practice are so plausible that many are captivated by them; but after whirling the hay cutter a few years, and due reflection, they usually conclude that our domestic animals have pretty good hay cutters of their own ready for use, and if better ones were necessary, nature would have provided them. If those who have any doubts upon the

subject will examine it in the light of a few plain and well known physiological laws, they will see at once, without the trouble of experimenting, its real merits.

Simply passing hay through a cutter adds nothing to it; pouring on water and mixing meal with it, and feeding out immediately, extracts nothing from it. In this form of cut feed it is eaten or rather swallowed quicker. Here is a saving of time, and this is as far as some reason. They look upon eating as a task, and he who does it in the quickest time, whether man or horse, is the best fellow. But let us carry our inquiries a little further. Is this hastily eaten food in a better state for digestion than if it was eaten dry? The first step towards easy and rapid digestion, is thorough mastication. With grain, hay, or any dry fodder,—substances difficult of digestion,—it is highly important that this preparatory process should be perfect, that these materials may be acted upon by the full power of the saliva and the gastric juice. This is done when they are fed dry, and the animal chews slowly; the prolonged chewing excites a copious flow of saliva, which moistens and softens the food by the time it is made fine enough for swallowing. Then, if the gastric juice is not diluted and cooled by drinking a large quantity of cold water, just before or after eating, it will at once have the full benefit of that powerful solvent.

The rapidity with which an animal swallows depends upon the moist and smooth condition of the food, rather than its fineness. Meal is fine enough for swallowing, but it cannot be swallowed dry. A horse must continue to grind it until it is saturated with saliva. Yet mix it with sufficient water and he will drink it. As far as the act of swallowing is concerned, it makes little difference whether the food is moistened with saliva or water. Therefore every quart of water put upon the food tends directly to prevent fine chewing, a free flow of saliva, and the immediate action of gastric juice; and hastily eaten cut feed must require a longer time for digestion, or pass through the system imperfectly digested. For want of thorough preparation, by mastication, the stomach and intestines have a double task to perform, or there is a notable loss of food. Let every one judge for himself, which is best for his horse, a full allowance bolted down, or a scanty one thoroughly masticated. Said an old horseman to me, recently, "Two quarts of grain fed dry, will do more good than three quarts when saturated with water." Old hay and oats fed dry is the standard diet in England for horses kept for speed. Meal is readily eaten dry, if hay is in the manger at the same time. Some experienced feeders pour the grain over a portion of the hay. It is natural for horses to eat a considerable portion of their time, and the pleasure of eating lies in masticating. Why not let them enjoy all there is of pleasure in slowly chewing good sweet hay and grain? Cut feed, which they eat so quickly, does not satisfy them; when fed on it for a long time, they show their dissatisfaction by biting and gnawing their mangers, eating their bedding, and not unfrequently become inveterate cribbers.

One of the principal arguments in favor of cut feed, is, that coarse, dusty and poor hay and fodder will be eaten which otherwise might be rejected. In some markets and upon many farms, grain is cheaper than first quality hay; consequently poor hay or straw is used with a large quantity of grain. Under such circumstances cut feed has become a common mode of feeding. Sometimes sufficient grain is given for the support of the animal, while the poor fodder is added merely to give bulk to the food and preserve health. In another system less grain and more of this poor fodder is used, under the belief that whatever is eaten must afford nourishment. Straw and poor hay are harder of digestion than good hay; consequently there is greater necessity for thorough mastication when they are fed. Animals fed chiefly on grain, or confined exclusively to one quality of hay, and that a poor one, will eat that poor stuff dry as freely as is for their good; and it is poor economy to force them to eat large quantities of what is difficult of digestion, and deficient in nutriment.

Again, it is said in favor of cut feed that the water absorbs and lays all dust that may be in the fodder. This is true, and it is also true that the dust and dirt thus absorbed is eaten. Would it not be better to remove the dust by shaking the hay lightly in a current of air?

These objections to cut-feed are not so serious with ruminants as with horses. Their more complicated and powerful digestive organism extracts nutriment from what would do horses little or no good. In the act of chewing the cud, they can recover in a measure the loss from too rapid eating. There is, undoubtedly, a gain in cutting corn fodder for them, even when it is fed dry, but all kinds of stock prefer hay, if eaten dry, its natural length; when cut into short lengths the numerous sharp ends irritate and prick the mouth.

Steaming and Cooking

Produces a radical change in food, which facilitates digestion and assimilation. Some men have confidently asserted that the time would soon come when it will be considered economical to steam or cook all the winter food of all kinds of stock. The present state of agriculture will hardly make such a vast amount of cooking advisable. Still the very young, the old, the sick, and those designed for the butcher, claim some indulgence or extra care. For them something resembling cooking is practicable. It is a sad mistake to turn off young stock upon the coarsest and toughest kinds of fodder, while their digestive organs are weak and immature. An old horse or cow whose grinders fail prematurely may

be made to eke out a few more years of usefulness by a little help in preparing the food. Boiling water poured upon meal or hay in a barrel or miniature steam box, and covered quickly and tightly, and kept warm a few hours, will produce a partial cooking. Could corn stalks and straw be thoroughly steamed, they would afford a far larger per cent. of nutriment. But I have tried steaming meadow hay and found it brought out the sour, strong meadow smell and taste so fully that the dry was preferred to the steamed, even after it was sprinkled with meal. Of course where steaming is practiced the hay cutter is necessary to reduce the fodder to a fine state.

Generally speaking, the field is the best place to prepare food. By cutting all grasses and grain intended for fodder while the stalk is tender and full of sweet juices, and carefully curing and saving them, our animals will be saved much hard and useless grinding. The stalks and leaves of grain and the grasses are merely to support and produce seed, that it may in turn reproduce itself, when the seed is fully developed little remains in the stalks except tough, woody fiber. Where only fodder is desired, it is plain its quality will depend upon the time of cutting. It is easy, by cutting early, to have tender, nutritious hay that will keep animals as slick, plump and healthy, as when fed upon grass. There is no economy in raising poor fodder year after year upon land which admits of improvement.

If the time and expense required to work up poor hay into palatable food were spent in reclaiming the land that produces it, tenfold better results would be obtained. Hay of inferior quality occupies as much ground, requires as much labor to harvest and feed, and frequently more, while its nutritive value falls far below that of first quality.

How often shall Stock be Fed?

Upon this point, also, there is a wide difference of practice. I have been upon farms where cattle were fed seven and eight times a day, and upon plantations at the South where only one meal per day was given to mules, although at hard work. Here are extreme cases. In one, the plan of frequent feeding is adopted to tempt the stock to eat poor fodder; in the other, the convenience of man was consulted, rather than the strength and health of his dumb beast. What is the proper mean? What shall be the guide? Domestic animals are subject to the same physical laws as man, and the same code by which he regulates his own diet will furnish a safe guide for theirs. Dry, solid food requires a different management from tender, succulent herbage. Sufficient for one meal should be given at one time, and no more until that is digested; for the stomach needs its periods of rest. It likewise partakes of the strength or weakness of the body; nor can it perform its office well while the whole system is under violent exercise; therefore, it is an error to give it a heavy task when great exertions are required of the body, or at night after it has been exhausted by extra hard work.

There is a wide scope for the exercise of sound judgment in feeding. Many little things daily occur that must be taken into account. To feed well, and yet economically, is a nice point to determine. Americans are justly called extravagantly wasteful in their own food, and would it be strange if they were found so in feeding their stock. Give a working animal all he will eat; cram one fattening all you can, are common rules. Would it not be better to say—only what they can digest? for the feted breath and strong, unnatural odors that are often noticed in stables, disclose the fact that the stomach is over-loaded, and food is passing through them undigested. The excess of food thus fed is worse than wasted, for it weakens the tone of the digestive organs and prevents perfect work, when only a proper quantity of food is given.

The subject might be further pursued, but enough has been said to show that the art of feeding is of vital importance. Oftentimes the profit or loss of a farm turns upon its successful practice. The crops may be most bountiful, yet if there is no economy in feeding them out where shall the profit be?

Lawrence, Mass., Oct., 1867. N. S. T.

For the New England Farmer.

OXFORD COUNTY, MAINE.

I have just returned from the fair at Paris. For fear of mystifying my readers, perhaps I had better say that the fair was at South Paris, Me., being the twenty-fifth of the Oxford County Agricultural Society. "Every body and his wife" were there,—many of the good wives wrapped in furs, ready to defy the cold weather that Monday's rough snow-storm threatened to send immediately.

In the upper exhibition hall, commodious and comfortably supplied with seats, we found the usual assortment of knit coverlets and tidies, "rising-sun" and patchwork quilts, lamp mats and pincushions, slippers and worsted work, pictures and vases,—mostly all of home manufacture,—for a county fair, is, of course, for the benefit of home exhibitors. The flannels, frocking and carpeting were excellent in quality and make. Some of the hand-made rugs were very beautiful,—two so perfect as almost to mock the beauty of a Brussells mat. The display of fruit was very fine. The various specimens were of "every day" glory,—nothing uncommonly large or rare,—but luscious and fair, as if the grower had taken pains to provide his family with the choicest kinds. In the lower hall the display of agricultural implements was small. Mr. Merrill of South Paris presented a Pettengill's Cultivator, an implement capable of various transformations, and much liked by the farmers about here.

Besides plows and cultivators, he showed also his Yankee churns, one with, and the other without the air pump. Hardly the thing, I should say,—not force enough in the dasher, and too small for this butter-making district. Mr. J. A. Burns had a strange looking machine,—a root-digger and cutter.

Mr. Simeon Pierce, of North Norway, a minister, had the best display of vegetables and root crops. Among many noble things, beans with pods a yard long; snake cucumbers, ditto, and some beautiful Colorado wheat, all proving that ministers can practice as well as preach about the dignity and Christianity of labor, and not disgrace the precept either. I had expected a better show of squashes, as another minister, Rev. Mr. Dunham, of Woodstock, has been raising some monsters, one weighing over 200 pounds. I wondered also that hops were not visible, as Oxford county has raised, it is estimated, $150,000 worth. Bethel alone raised nearly $40,000 worth of this unnecessary article.

Witherm V. Grafferm, of Sumner, had the best result in stock, forty-two animals being presented. A full-blooded Durham calf, four months old, weighing 450 pounds, also a Durham and Hereford bull calf, six months old, weighing 630 pounds, attracted much attention.

Stock raising appears to be but little followed in this part of the State, and I wonder at it, where the farmers own so many acres. With Maine farmers, "ten acres enough" is neither a fact, nor a principle. Many of the farms are so far from a good market that land is very cheap, and labor being high, the farmer seems to have a mania for owning as much of this cheap, unimproved land as possible, and he is not always particular in choosing the best land either. He invests all he can in accumulating acres,—perhaps runs in debt for a part. This hampers him, and the want of a market prevents good sales and thorough cultivation, and the man is always poor,—the mortgage never removed. There is a place not far distant called Hungry Hollow, and it has tormented me ever since I've seen it. Down an almost perpendicular hill, rocky and dangerous, and covered with thick undergrowth, at the risk of overturning the wagon and breaking our necks, we descended into a rocky, scrubby valley, and found a rude, half-finished shanty, occupied by a fat, lazy farmer, wife and two delicate children, who had been there for years. After passing with difficulty the house, and struggling up the steep declivity of the opposite side, we halted on the summit and looked back. A stream meandered through this rocky place, and here and there were cultivated spots, but no where a good field of corn or potatoes. The frost touches here early in the fall and late in the spring, so crops are often a failure; but the man seems contented to raise only enough for his family, look at his rocks, and let the wind sift through his house. Rocks, rocks, rocks; and the more he owns, the more he wants to own. I will not say that all farmers like such a barren place, for there are rich farms here, and practical workers; but I've ascertained that this man's head is as hard as his rocks, and his mind as deep with barren satisfaction as his valley.

But I'm digressing far from the Fair. Passing by the base ball games and side shows,—one exhibiting a majestic piece of manliness, seven feet ten inches high, weighing 410 lbs., and a freckled fat woman of 580 lbs.,—I will mention a race that occurred the third day, for the Society's purse for the best horse raised and owned in the county, won by Meddlesome, owned by America Andrews, of Paris. First half made in 1.21, and the heat in 2.43. In a volunteer trot, a horse, five years old, belonging to Mr. Heald, of Sumner, won, making the heat in 2.39. This horse has had only three weeks' training, his owner but lately discovering his fleetness. In the ploughing match, Charles H. Durell tried the Western plan of harnessing three horses abreast, and with a Hussey plough, made the dirt fly briskly.

Fairs are pleasant places to see human ambition and practical poetry. The theories worked into facts are astounding to the doubting vision, especially in the machinery that saves so much labor, yet doubles farm profits. If our fathers and mothers could rise from their graves and take a walk through our fair grounds, when in full operation, they would wonder where the spirit of invention was when they existed. THEO. WILLISTON.

Norway, Me., Oct. 3, 1867.

FALL AND WINTER CARE OF SHEEP.

Now is the time to prepare lambs for winter. They should be kept growing every day. There is a difference of opinion whether they will do best on old pasture, or on the after growth of meadows and new seeded stubbles. Our opinion is that they will do well enough on either, provided there is an abundance of fresh, sweet feed. If put on old pastures, they should be those which have been well fed down, and then allowed to start up fresh and green. It is the opinion of most successful flock masters that as soon as the grass begins to be rendered innutritious by frost, it is expedient to give tegs a little extra feed. They grow finely on pumpkins or roots. Wheat bran is one of the very best feeds for them, and it can be mixed with a few oats as the grass grows poorer.

It is a decided mistake, however, in our judgment, to *pamper* tegs in the fall. If fed high at this season, they feel their winter feed less; and it must be increased to an extent which renders their wintering less safe. We have, it is true, seen many a flock of them very highly kept in winter which went through

"splendidly," and were of the size of ordinary two-year-olds at their first shearing. Indeed, this is the ordinary course of those who breed tegs to sell at high prices. With great care and judgment, and especially in small flocks, it may ordinarily be safe enough—but we have known too many severe disasters to grow out of the practice not to caution the mass of sheep-growers against it. We esteem *pampering* sheep at any age, except when they are being fattened to kill, injurious—and especially so before they reach their second year. Their natural habits are unfitted to it, and their constitutions will not safely bear it. When they are appearing best, the destroyer sometimes comes so suddenly and fatally as to defy all discovery of *proximate* causes and baffle all remedial measures.

For both the fall and winter feed of tegs we prefer, among the grains, oats and bran. Both (unlike corn) tend to the production of muscle (lean meat) instead of fat, and therefore promote growth instead of unnecessary obesity. They afford aliment in a less concentrated and therefore less stimulating form. They are, in popular phrase, less "heating" and less "feverish," feed, i. e., they do not so much predispose the system to inflammatory tendencies and attacks. If fed separately, equivalents of them in weight are probably about equivalents in nutriment—but we much like the plan of feeding them mixed, say one part oats to two of bran; and to Merino tegs well brought into winter, a gill of bran and half a gill of oats, per head, with a little green feed (say a gill of turnips,) with a full allowance of bright, fine, early cut hay, ought under ordinary circumstances to be a sufficient daily allowance for "store" tegs in winter. By "store" tegs we mean those not fitted up to sell, or show at Fairs, or raise "brag" fleeces from—but those intended to be kept in the flock for regular wool growing purposes.

Fine, green, early cut and well cured hay is almost indispensable in wintering tegs. No grain or root feed can properly supply the want of it. We would rather winter tegs on it without any grain, than on coarse, dry, over-ripe timothy, with any amount of grain and roots. We esteem fine, red clover, cured "green as tea," a very important, if not necessary ingredient in hay for tegs. We would prefer to have it form from a third to a half of the mow.

Cold, severe autumn rains benefit no sheep, and are perceptibly injurious to tegs, especially if they are thin and backward. When these rains begin to fall, tegs should be brought near the barn, and run in during their continuance, and as winter approaches, also during cold, raw nights. If kept up more than half a day, they should be fed hay in a rack. But we had rather they should remain out of doors than to be crowded into some little, stinking (that we should use such a word!) hole, with mud or wet dung up to their fetlocks, there stand fasting for twelve or twenty-four hours.

It is useless to talk about ventilation, and perfect dryness under foot, in a sheep shelter of any description. These topics are stale. But we may suspect some men, who are not used to it *in their own houses*, do not know what proper ventilation is. We propose the following tests:—When a night's confinement of the flock in the sheep house produces even a slightly disagreeable animal smell, or a temperature above 60 degrees, the house is not properly ventilated.—*Dr. Randall.*

FODDER CORN.

The season has been so excessively wet in New England that an argument based on a severe drought in a section as near as Western New York has an air of novelty with us. Mr. Harris of Rochester, author of "Walks and Talks on the Farm," published in the *American Agriculturist*, thus states the reasons for the resolution that "another year I will not be without a piece of fodder corn, on rich land, near the barn yard, to be cut up in August for milch cows:"—

We have had one of the most severe droughts I have ever known. I have always been partial to a dry, hot summer—it gives such a splendid chance to kill weeds—but this is rather too good. At the East, I understand, they have had a very wet summer, and the papers complain that the potatoes are rotting in consequence. Here we shall have few or none to rot. Corn will not be half a crop. I did not sow any corn for fodder, but we have been obliged for some time to cut up corn for the cows. As it was drilled in, and was a little too thick, I do not begrudge it the cows as much as if it was planted in hills. There is a heavy growth of stalks, and I am astonished to see how little ground we have to go over for a day's supply. Another season I will not be without a piece of corn fodder, on rich land, near the barn-yard, to be cut up in August for milch cows. Some of my neighbors had a piece this year, but it was sown broadcast, and the dry weather parched it up. In moist seasons, corn sown broadcast sometimes does well, but, as a general rule, it should be sown thickly in drills, and thoroughly cultivated, and the more highly it can be manured, the better. Rich land, thick seeding in drills, say three bushels per acre, and thorough cultivation, are the essentials in raising corn fodder. And in such circumstances it is astonishing how much feed can be obtained from an acre.

—Prof. Turner of Jacksonville, Ill., received last year $100 for grapes growing on an elm tree. For years he tried to prevent the vine going into the tree.

ROTATION OF CROPS.

In order to render the action of manures more effectual and secure the greatest possible amount of produce from a given quantity of aliment, and, at the same time, insure an increase of productive energy in the soil cultivated, a system of *rotation*, or rather a variety of systems, has been introduced.

A proper rotation of crops is considered in England "as the most prominent feature in good farming; as the most important particular that has been treated of by modern writers on husbandry, and the subject on which they have thrown the greatest light; as capable of furnishing a considerable increase to the produce of the land; as peculiarly constituting what may be called *the soul*, or essence, of husbandry; in short, as the true ground-work of general improvement;" and if well understood, as the most likely means of promoting the cause of agriculture, and the interests of the country. It cannot, indeed, be represented in too important a light, nor too minutely examined, its object being to ascertain, "*that mode of management, which is the most likely, for a series of years, to yield the greatest quantity of useful produce, at the smallest comparative expense and risk, from any given extent of land.*"

We will not attempt now to discuss the principles of these systems or the analogies upon which they are predicated. The following courses, however, although far from embracing all the products involved in a thorough course, as prescribed by the British and German culturists, have been found highly favorable in our climate, and in many instances, have been productive of most excellent results:

I. 1st year, Corn and roots well manured;
2d " Wheat sown with clover seed, fifteen pounds per acre.
3d " Clover, one or more years according to the amount of manure on hand.

II. 1st " Corn and roots with all the manure;
2d " Barley and peas;
3d " Wheat sown with clover;
4th " Clover one or more years.

III. 1st " Corn and roots with all the manures;
2d " Barley;
3d " Wheat, sown with clover;
4th " Pasture;
5th " Mowing;
6th " Fallow;
7th " Wheat;
8th " Oats, sown with clover;
9th " Pasture or mowing.

It will be observed that, in each course, the number of fields corresponds exactly with the number of changes, and that, in the first, there are three, in the second four, and in the third, nine.

The adoption of a judicious system of rotation requires some important pre-requisites in all cases, and the division of a farm into fields or separate enclosures, which is requisite where pasturing constitutes one of the changes, will generally be found too expensive for most farmers, and especially for such as possess limited means; yet that the principles on which the practice is based, are clearly philosophical, few persons, it is presumed, will for a moment doubt.

It is a general practice, all over New England, not to cultivate the same crop on the same land, two or three years in succession. All, therefore, practice rotation in their crops, but do not extend it into a well-defined system.

Human wisdom has not yet discovered any means whereby we can tell all that is lacking in any soil, which a certain crop requires. A careful analysis of the soil may show us something near what is wanted, and be of essential service. But such a process would be too tedious and expensive. It has been proved in a thousand cases, that *changing the crop* ensures decided advantages; and this is our cheapest and easiest mode of proceeding.

For instance, we sow a crop whose wants are largely of *potash;* but the soil abounds in *lime*, and has little potash. On another farm, a crop is put in which demands lime, but the soil is deficient in that, and has a large supply of potash. In both these instances, there is loss, because we do not know what the soil contains, and what the plant requires.

Prof. Johnston, in one of his lectures, shows *why a rotation of crops* is necessary. He says: Suppose the soil to contain a certain average supply of all those inorganic substances which plants require, and that the same corn crop is grown upon it for a long series of years—this crop will carry off some of these substances in larger proportion than others, so that year by year the quantity of those which are thus chiefly carried off will become relatively less. Thus, at length the soil, for want

of these special substances, will become unable to bear a corn crop at all, though it may still contain a large store of the other inorganic substances which the corn crop does not specially exhaust. Suppose bean or turnip crops raised in like manner for a succession of years, they would exhaust the soil of a different set of substances till it became unable to grow them profitably, though still rich perhaps in those things which the corn crop especially demands.

"But grow these crops alternately, then the one crop will draw especially upon one class of substances, the other crop upon another; and thus much larger crops of each will be reaped from the same soil, and for a much longer period of time."

A LANDMARK.

The question is sometimes mooted whether there has been any actual progress in the art and science of agriculture during the last half century. Whatever may be the result of this discussion, we think there can be no doubt as to the progress of the agricultural press, during that period. Still this progress has been so quiet and so gradual that we are occasionally startled by some old landmark that reveals the actual velocity of the "stream of time"—which is impelling our onward course.

In writing up the history of the Kennebec Agricultural Society, the oldest society of this kind in that State, the Maine *Farmer*, presents one of these landmarks in the following extract from the records of a meeting of the Society held Nov. 6th, 1822:—

"*Voted*, That the Society take two copies of the publick Paper published in Boston called the NEW ENGLAND FARMER, and that two of the Trustees become subscribers,—therefore Chosen, Samuel Wood, Esq., and Willm. Richards, Esq., subscribers as above."

As this vote was passed during the first year's existence of the FARMER it is possible that Samuel Wood and William Richards, Esqrs. were its first subscribers in Maine. But whether they were the first or not, it is well known that for a long time, although the NEW ENGLAND FARMER was the only agricultural paper in New England, its circulation was extremely limited. We were told a few months since by Mr. Durant of Lawrence, who for several years furnished the paper on which it was printed, that one "bundle" sufficed for two weeks—less than five hundred sheets per week! Yet such has been the increase of our circulation, and such the improvement in the agricultural press, that we now furnish a sheet about three times the original size of the FARMER, and notwithstanding the stimulus of war prices, the rate of yearly subscription is the same now as when this ancient and honorable society passed its resolution to "take two copies of the publick paper printed in Boston, called the NEW ENGLAND FARMER."

There are now six weekly and two monthly agricultural papers printed in New England; the average circulation of which is considerably larger, counted by thousands, than was that of the single one forty-five years ago, counted by hundreds. And yet at that period both the agricultural editors of the present NEW ENGLAND FARMER had completed more than half the prescribed course of the only Farm School known to the youth of that generation.

AMERICAN POMOLOGICAL SOCIETY.

This Society held its eleventh biennial session at St. Louis, Mo., commencing September 10th. Previous sessions have been held successively at New York, in 1848; Cincinnati, in 1850; Philadelphia, in 1852; Boston, in 1854; Rochester, in 1856; New York, in 1858; Philadelphia, in 1860; Boston, in 1862, and Rochester, in 1864. On account of the prevalence of the cholera, the session for 1866 at St. Louis, was postponed to 1867. At the late fair there were exhibitors from the States of Missouri, Illinois, Indiana, Ohio, Kentucky, North Carolina, New Jersey, New York, Iowa, Pennsylvania and Massachusetts. The fruits exhibited comprised 680 dishes of grapes, 82 of apples, 745 of pears and 212 of peaches. The President, Marshall P. Wilder, said the exhibition of fruit greatly exceeded expectation, rivaling anything heretofore seen in the way of pomology. The society adjourned on the 13th, to Philadelphia, two years hence.

We are indebted to the St. Louis *Democrat* for a detailed journal of the proceedings of the late session, including the address of the President, Hon. Marshall P. Wilder, a paper by Thomas Meehan, Esq., of the Philadelphia *Gardener's Monthly*, on "Fire Blight,—Canker—Leaf Blight," and much other valuable information and suggestions in relation to the cultivation of fruit, to which we hope to be

able soon to refer more at length. The following officers were elected.

President—Marshall P. Wilder.
Vice Presidents in New England—Maine, S. L. Goodale; New Hampshire, Fred Smyth; Vermont, E. C. Worcester; Massachusetts, C. M. Hovey; Connecticut, Daniel S. Dewy; Rhode Island, Silas Moore.
Treasurer—Thomas P. James.
Secretary—F. R. Elliot.

For the New England Farmer.

CHEMICAL TERMS---No. III.

We constantly meet with the terms oxygen, nitrogen, hydrogen, phosphorus, ammonia, carbon, carbonic acid, sulphur, sulphuric acid, potash, silex, silicate of potash, lime, &c. Let us inquire what is meant by these terms; what are the substances which are described by them, and what properties they possess.

Oxygen.—This term is derived from a Greek word, *oxus*, which means acid, and another Greek word which means to produce, to bring forth,—it means acid-producer. It was supposed to be the basis of all acids. When existing by itself, it is an invisible, colorless gas. It exists abundantly in nature in combination with other bodies. Of 100 measures of atmospheric air, 21 consist of oxygen. Water consists of one part, by measure, of oxygen, and two of hydrogen. It is found united with metals and earth. Combustion is the union, more or less rapid, of oxygen with combustible bodies. It was called *vital gas*, because it is essential to life,—no breathing animal can live without it,—and yet it is the great agent of decomposition or destruction. It seizes upon metals and converts them into rust, or oxides. When vitality has left organized bodies, their component elements are at once seized upon by oxygen, which unites with their nitrogen and converts it into atmospheric air; with their hydrogen and converts it into water; with their carbon and converts it into carbonic acid; with their phosphorus, and converts it into phosphorous acid,—thus setting all these elements free from the combinations in which they had previously existed, and diffusing them through space. Thus it is obvious that by its universal presence and ceaseless activity, it performs a very important part in the works of nature.

Nitrogen.—This is also an invisible gas, without taste or smell, constituting about four-fifths of the atmosphere. It is found abundantly in the organic kingdom, combined with animal and vegetable organisms. It is found in saltpetre, or nitre,—hence its name, nitre-producer.

Hydrogen.—From the Greek word *hudor*, water,—water-producer, because it is always found in water, which cannot exist without it. Two parts, by measure, of hydrogen, combined with one part of oxygen, form water. Hydrogen is a very light gas. The two parts existing in water, weigh only one eighth as much as the one part of oxygen; one part of hydrogen weighs only one-sixteenth as much as the one part of oxygen. In nine ounces of water, only one ounce will be hydrogen. It unites with oxygen to form water, always in the same proportion. Hydrogen gas is easily obtained by separating it from water. When thus separated, if flame is applied to it, it combines again with oxygen so violently as to cause explosion. It is separated from water in the organs of animals and plants and converted into a solid. Combined with nitrogen it forms ammonia.

Phosphorus.—This is a simple substance, highly inflammable, of a yellowish white color. In cold weather it is brittle; in warm weather soft and flexible, like wax. A piece of it laid upon cotton or blotting paper, in a hot day, will take fire spontaneously. The heat of the hand will cause it to take fire. It is not dissolved by water, but is dissolved by ether, alcohol and oils. When exposed to the air, it slowly combines with oxygen, giving off a white smoke and a strong light. In other words, it shines or phosphoresces,—hence its name, from two Greek words, *light* and *to bear*, or light-bearer. When combining with oxygen it emits the smell of garlic. When it burns slowly it combines with three parts of oxygen, forming phosphorous acid. When it is burned more rapidly, with flame, it combines with five parts of oxygen, forming phosphoric acid. When phosphorus has been combined with oxygen, it exhibits the properties of other acids, and will readily combine with lime and other alkalies, and with the oxides of metals. In this way phosphate of lime is formed, which enters so largely into the composition of bones. Formerly phosphorus was obtained from urine, in which it exists in the form of phosphate of lime, phosphate of magnesia, &c. Now it is obtained from bones, the gelatine and lime being removed by certain chemical processes, leaving the phosphorus. By means of lime and heat, it can be made to decompose water, a portion of it combining with the hydrogen of the water and forming a gas,—phosphoretted hydrogen,—which takes fire on exposure to the air. When bones are put into one part, by measure, of sulphuric acid, and three parts of water, sulphate of lime (gypsum) is formed, and falls to the bottom, and phosphoric acid and lime remain in solution. If this solution be evaporated to dryness, a white powder is formed, which is superphosphate of lime. R.

Concord, Mass., Sept. 16, 1867.

For the New England Farmer.

ANOTHER LETTER FROM MAINE.

Maine is a fine State, rugged and strong. The people resemble her hills in possessing that strength of character, without which no man can carve a name nor make a fortune, and with which every legitimate son of Maine has a "free pass" anywhere. Next to Massa-

chusetts, I believe that Maine has the best people in the world.

I was pleased with an editorial in last week's FARMER, upon the "Misrepresentation of Farm Life." It strikes me that all who caricature farm life, or in fact, any life foreign to their own, belong to that class who never look into the *soul of things*, nor understand the economy and motives of the people who perform the work of life, of which every one should bear a part. The "intellectual powers," that a visit of a few weeks upon a farm gave "boldness enough" to thank God for, could not have been *even* thoughtful intelligence, if it "raised them in *their own* esteem, into another race of beings." God never accepts such pharisaical thanks, and I cannot imagine where the writer found her "animated clods." Certainly not among those who make life so practical as she represents it to have been among the "community blessed with miles of the richest lands in all the Northern States." Among the agricultural items of the same issue, we read "He is the most reasonable worker who judiciously divides the responsibilities and duties of life between brain and muscle." I have found many such "reasonable workers" in the several communities where I have visited, in the rural districts of this State, and although I have found ignorant persons here, as elsewhere, yet search as thoroughly as I may, I am doubtful if I could find an "animated clod" throughout New England. I have seen "clods" of a slimy nature and of "animated" baseness, within the "halo of brick walls and narrow yards," individuals who walk with their conscience under their feet, and keep their souls where goodness can never reach them; but never where the earth smiles with innocence and plenty, and nature speaketh with a clear and happy voice. What a libel upon God's noblest work! I think "good clothes" worn every day have much to do with some people's estimation of character;—and farmers seldom dress well, you know!

Hops are housed and ready for marketing, and the general query among hop growers is, "What's hops worth?" Then comes the conversation about this rumor and that surmise, which may directly or indirectly affect the price of this commodity.

I have noticed several articles lately in the FARMER, regarding the disposal of the "plaguy" stones. I have just ascertained one way in which they have been used to a good purpose. My host is quite a hop grower, every year increasing his fields and his profits. Last summer, in setting out a new field, he placed a number of hills so near the wall that the horse in ploughing could not go round them. Being thus left to themselves, they flourished and covered the stones with splendid clean blossoms, free from lice and rust, although vines on poles within six feet were greatly damaged by these pests. These outside hills had been transplanted, but accidentally a few sets were left in the ground, which this year received but little care, no one supposing them of any account until the superior product of the stone-heap was discovered. These vines bore the finest, largest, cleanest blossoms my friend had ever seen. Next year will see his stone fences green with vines, enjoying the largest liberty. He intends to plant a thousand hills and make his walls and stone heaps pay for piling them up. Oxford promises to be the hop-producing county of the State. The farmers are all going into the culture, having had thus far excellent success. One man in Rumford has fourteen acres under cultivation, and is planting more. I did not know before that the dust or pollen of the flowers was very useful as a remedy for nervous complaints. I have used it several times lately, and am charmed with its power.

Potatoes are looking very pitiful; the rust is ruining many a farmer's hopes, and depriving them of the reward of their toil. Many fields make the highways anything but pleasantly odorous. The white muck worm is committing great depredations upon many corn-fields; making fodder where the sower expected meal. The roots are entirely eaten off. Some of the farmers are now cutting their second crop of hay. Apples are not inclined to *embonpoint* this year, either in quantity or quality. Pears likewise. The climate is too cold to raise successfully any kind of pears, but pairs matrimonial. THEO. WILLISTON.

Norway, Me., Sept. 13, 1867.

For the New England Farmer.

WHEAT GROWING.---ONION WORM AND SWALLOWS.

I take up my pen to inform you and my brother farmers in general that I have been successful in making my *seventeenth* successive crop of wheat. Now I do not make this in any spirit of boasting, but as an encouragement to my brother farmers to endeavor to grow this valuable cereal.

A writer in the New York *Tribune*, who travelled through the wheat region of the West last season came to the conclusion that the farmers of New England mu-t grow a part of their wheat or pay about *fifteen* dollars per barrel for flour. Now what think you, brother farmers, of paying fifteen dollars a barrel for flour, the remaining part of your lives, and of the annual tax thus transmitted to your children, amounting to a sum in successive years, compared with which our portion of the national debt would sink into an insignificant item? There is a large breadth of land in New England that, by judicious management, is capable of producing paying crops of this grain, and leaving a handsome profit to the producer. After careful observation for a long series of years, I have come to the conclusion that the longer a farmer neglects

to grow wheat on his farm, the more he diminishes his chances for a good crop; or, in other words, wheat straw is the best fertilizer for wheat,—containing as it does a large portion of silex in a proper condition to produce another crop. Wheat straw and chaff in no case should leave the farm. The notion that wheat cannot be grown is an idle one, with no foundation of fact. Our hills are, by proper cultivation, as capable of producing this crop as they were one hundred years ago. The wheat fields of Rome, from which wheat harvests were gathered in the days of the Republic are capable of producing wheat to this day.

The wheat crop in our vicinity is being good this season, considering the extremely wet weather. Though comparatively but little was sown, there will be something over one hundred bushels grown in my immediate neighborhood; and less comparatively in most other portions of the town. I shall endeavor to obtain the number of bushels raised in the whole town.

The Onion Maggots destroyed by Swallows.

I have grown onions for the two past years. Last year, being my first acquaintance with the crop, I had to grope my way along, but I had a very good crop. This year I sowed a larger breadth, and was all right till about the 20th of June, when the maggots commenced eating, and I would have sold out the crop for five dollars. On the last of June the barn swallows commenced a raid upon the onion patch and followed it several days, and when the swallows left, the maggots did also, and the result is a fine crop of onions. Now did the swallow destroy the onion fly? I have read of many remedies and tried several to no effect against this pest, but in this case the swallows were effectual. There were at least fifty during the two days that I observed them on the patch, and before a week they entirely left. This seems to be a strong plea for the birds.

The hay crop is good, but much damaged; meadows nearly ruined, many not cut yet; grain good; apples short; corn on high land fair, on low lands poor; potatoes rotting badly, one half of the crop will be lost; second crop of grass will be good if we have weather to save it. H.

Epping, N. H., Aug. 31, 1867.

For the New England Farmer.

POULTRY, DOGS, &c.

The fact is well established in this section of country, that the raising of turkeys has got to be a very precarious business. And why? Turkeys, unlike most other domestic fowls, cannot be raised by every one, for want of territory for them range upon. Possessing a roving disposition, they ramble about over many acres in pursuit of food; consequently the farm, and a tolerably large one, with neighbors at a respectable distance, must be their home. But upon such farms are found most abundantly the enemies of the turkey, such as foxes, skunks, &c. Notwithstanding the utmost care, more and more of them are yearly caught.

But a few years ago my mother thought it "no knack at all" to raise thirty or forty good nice turkeys. A little care and attention until a week or two old, and then they went where they pleased until time to begin to feed them in the fall,—rarely one ever being caught. Now, if you trust them out of sight, there is danger of losing one or more. Recently a neighbor lost his "old gobbler" by a sly fox taking it within ten rods of him, while haying. A grand display of hallooing did no good as reynard bore off his prize in triumph. Last summer he lost some thirty or forty from the same cause. Others who have attempted to raise them lose from one-third to one-half of their flock by means of foxes, skunks, &c. Of late, too, woodchucks have become so plenty that we cannot raise beans in the field, and last season they attacked our squashes and pumpkins.

Now what is the remedy? The dogs that formerly took care of these animals have mostly succumbed to the two dollar yearly tax. Some large fat, lazy, ones, that have rich owners, yet remain, but those sprightly ones, the terror of woodchucks and other small vermin, have left for the interests of the sheep-raiser, but to the detriment of our crops, poultry, &c. While I am ready to admit that dogs sometimes kill sheep, I have good reason for saying that they are sometimes falsely accused, and that the remains of many a sheep that died of disease or old age, have been pointed to as justification of the most unfounded charges against dogs. Still I am willing that the majority should rule. J. B.

Ashfield, Mass., 1867.

INDIAN CORN.

BY CHARLES G. LELAND.

For many a mile on every side
I see the golden corn,
And hear the cricket's notes around
Sound like a fairy horn
In concert with the wild bee's drone,
In elfin murmurs borne.

Long, long ago, as legends tell,
The Indian fairy queen
Unto the ancient Delawares
Came down upon the green,
An azure glory round her head,
Her robes a vapory sheen;

And where she sat tobacco soon
Its bitter fragrance flung,
And where her left hand touched, the bean
Rose flowering fresh and young;
And where her right hand swept, the maize
In golden glory sprung.

And whether you do eat it roast
Or take it baked in pone,
Or like it best as Johnny cake,
Still let the truth be known;
That corn first came from fairy land,
And was by fairies grown.

EXTRACTS AND REPLIES.

TOBACCO AND BAD HABITS.

Why is it that so many young men will soil themselves with tobacco? A cigar, a stove pipe hat, a walking cane, a moustache, and exemption from labor appear to be all the characteristics of a gentleman which some of our young men have the ambition to emulate. Why lounging, tobacco-using, rum-drinking and vile language are so much more comely to the young man than to the young woman, I could never understand. If I were a man, I'd be a *man*, and not depend on relations for support, nor on something "to turn up" for a living; nor would I become the slave of so offensive, so debasing and so unclean a habit as the use of tobacco; which it is well known tends to create an appetite or desire for more active stimulants. Young men beware; unless you make up your minds to reform, unless you resolve immediately to, slip your neck entirely clear of the noose which your tobacco and loafing habits have thrown over your heads, your escape will be evidence that the days of miracles have not as yet departed. CORA.

East Charlemont, Mass., Sept., 1867.

REMARKS.—The *Chemical News* notices a letter written by the Abbe Migne, a celebrated literary gentleman of France, in which he condemns the use of tobacco, in a manner which is well calculated to enforce the admonitions of our fair correspondent. Of his own experience M. Migne says: "When we began the editing of our lectures on analytical mechanics, we used snuff to excess, taking 20 to 30 grammes per day, incessantly having recourse to the fatal box and snuffing up the dangerous stimulant. The effect of it was, on the one hand, the stiffening of the nervous system, which we could not account for; on the other hand, a rapid loss of memory, not only of the present but of the past. We had learned several languages by their roots, and our memory was often at a loss for a word. Frightened at this considerable loss, we resolved in September, 1861, to renounce the use of snuff and cigars forever. This resolution was the beginning of a veritable restoration to health and spirits, and our memory recovered all its sensibility and force."

The *News* adds that "the same thing happened to M. Dubrunfaut, the celebrated chemist, in renouncing the use of tobacco."

It is sometimes said that in this country every man attains whatever rank of position he aspires to and is qualified for. Young men should therefore carefully avoid everything which lowers or debases themselves in their own estimation. While tobacco stupefies the intellect and injures the health, we believe that every one who has become addicted to the habit must be conscious of a defilement, which, in a greater or less degree, unfits him for association with the neat and tidy. "One of the most painful recollections of my experience in the use of tobacco," said a friend to us, who had abandoned its use, "is that of the discovery of a growing preference on my part for those places and that company which tolerated and encouraged the indulgence of my vile habit." "Birds of a feather flock together," says the old adage. Our railroad managers, in fitting up the "Smoking Car" of their passenger trains with gaming facilities, recognize this principle of association,—a principle which no young man who indulges the weed should ever forget.

But aside from its injurious and debasing effects, what a miserably disgusting habit it is! Look at the spittoons of our public houses, at the puddles in our cars and steamboats! Think where all this offensive liquid comes from, and if you must, why then, continue to

"Smoke—puff—spit—spurt,"

But pray do it in some place and in some way that will incommode as few of your fellow beings as possible.

We must close this "Extract and Reply," with an extract from the "Musings of a Fond Mother," recently contributed to the *Vermont Record*. After detailing the accomplishments of her "blessed boy" in the graceful use of "the weed" in all its forms, this fond mother proceeds:—

Already his face begins to wear
A beautiful sallow hue;
And soon I expect to see his nerves
Shake as his father's do:
Puff—munch—spit—spurt—
A promising lad is our Mandelbert!

O, how I wish it would do for *me*
To learn to smoke and chew!
It looks so nice, it smells so sweet—
The cigar and Honey-Dew!
Smoke—chew—spit—spurt—
I wish *I* could do it like Mandelbert!

But then—I can look at my darling boy,
And *smell* his daddy dear,
And see the rich tints of the Honey-Dew
On the stove and the carpet right here!
Fume—stain—spit—spurt—
A blessed boy is my Mandelbert!

SUBSTITUTE FOR BEE-BREAD NOT YET FOUND.

I am much obliged to your correspondents "Selrahc" and H. Alley, for their suggestions, but fear that the remedy is not yet found. Bees will not use rye meal when there are blossoms within their range; neither will they carry in saw-dust except at such times as they will rye meal. Now is sawdust a substitute for pollen? or why will they gather it and take it into their hives? In the spring of 1866 our bees were in very good condition with a good supply of honey and a good number of bees in each stock. They commenced work early in the season, and thus gave promise of doing well. Soon after they began their work, combined circumstances deprived them of their usual supplies and in autumn they had less food in their hives than when they were put out in the spring. The result was, a large loss, not from the want of honey, not from the ill-construction of the hives, but from the lack of bee-bread, as I am still inclined to think.

I believe it was in the autumn of 1859 that I was at Mr. Quinby's, a hive containing bees, near his door. On inquiry I learned that they were to be "brimstoned," being of no value to unite with another swarm or to be kept by themselves, because they were *old*. During the latter part of the season, the swarm had been queenless, consequently no bees had been reared, and ere another working season those bees would die of old age.

Twice our bees have failed to rear brood in the latter part of the season, and in midwinter before they can be fed with rye meal, saw-dust, or any-

thing else, in the open air, they die. I think Mr. Alley will admit that if bees will live as long as the honey lasts brood will not be reared without "bread."

Supposing all the rye meal was fed in spring that could be of any use; and suppose, again, that the old stocks would put in enough of it to last them until another spring, what are the young swarms to do for pollen when the usual supplies fail? Since we cannot feed rye meal at any time but in early spring, (at, least I am not aware that we can,) we want a substitute for pollen that may be fed to them at any time when honey can,—in early spring, summer, autumn, or midwinter. Without it, we are unable to preserve many swarms in seasons of scarcity. F.

Mast Yard, N. H., Sept. 1, 1867.

VALUATION FOR TAXATION.

We have received from a subscriber in Westfield, Mass., a communication in which he complains that the assessors of the various towns and cities in the State, instead of taxing property at its fair cash value, as required by their oaths of office, seem to have fallen into the false notion that the city or town that can make the lowest return, and thus cheat the most, is doing a nice thing, and favoring the tax-payers. The conscientious assessor who wishes to discharge his duties in accordance with the plain letter of the law, and his oath of office, is told by the large property holders, that if he puts in the property at a fair cash value, his city or town will have to pay more than its share of the State and county tax; for, say they, other cities and towns do not assess their property for more than one-half its value. The small estates of the farmer and the mechanic, says our correspondent, are generally taxed at about their real value, and why should the man who puts his money into expensive dwellings, or business blocks, or factories, claim exemption from the demands of the law? This subject should be agitated, until assessors are made to feel the disgrace if not the penalty of falsifying their oaths to please dishonest tax-payers.

COMPOST OF LIME AND MUCK—SUPERPHOSPHATE—LIME AND WOOD ASHES.

I wish to inquire what quantity of lime should be used in composting muck, to broadcast on grass ground or on land intended for grain. I have used Coe's phosphate of lime on corn, at the rate of about one hundred pounds per acre, and have received great benefit from its application. Would more be advisable, where it costs $3.50 per 100 lbs., by the barrel? I would also like to know if phosphate of lime and wood ashes or common lime sown broadcast on wheat land would make a good dressing. HENRY HUMPHREY.

Corinth, Vt., Aug. 25, 1867.

REMARKS.—Any quantity of lime, from five to twenty-five bushels, or more, per acre, would do no harm. The limit, it seems to us, must be determined by the *cost of the lime*, as, if you use it, you wish to use it *profitably*. Five bushels of lime to one cord; that is, 100 bushels of peat, would make a top-dressing that would be sensibly felt. That would make four loads of about twenty-six bushels each. You would be likely to use at least eight such loads per acre, and that would require ten bushels of lime. We think it better to use lime moderately and often, rather than to apply a large quantity at once.

Question 2. If the land is good, and liberally manured, your practice of using a small quantity in the hills, for the purpose we suppose of giving the corn an early and vigorous start, is just what we should recommend.

Question 3. Either of the articles which you enumerate would make an excellent dressing for wheat, and would tend greatly to secure a crop. The ashes or lime would probably be the cheapest, and, perhaps, the most sure.

CROPS IN MIDDLESEX COUNTY, MASS.

We have lost considerable here from too much moisture. Potatoes rot badly; squash in most cases a failure; meadow grass in many places not cut; mildew on the leaves of shrubs and fruit trees common. Apples are more plentiful than last year, but not a quarter crop. Pears blighted in leaf and fruit; grapes badly mildewed in leaf, and some in fruit. The northeast rains seemed to injure the grape leaves very much.

My Concord vines in fruit have a very heavy crop of fine grapes, and with the exception of a few bunches, are free from mildew; so of my Hartford Prolific vines. Adirondac, Allen's Hybrid, Underhill's Seedling, Roger's Hybrids, Nos. 3, 4, 15, 19, Iona, Creveling, Diana, Isabella and every variety I have, both standard vines and nursery stock, have been injured by mildew in the leaf to some extent, except the Concords in the nursery. The new growth is good and free from disease, and I shall probably lose neither fruit nor vine. The Concord, and Hartfords, and Isabella, are as vigorous as ever, and promise a large yield of fruit.

JOHN FLEMING.

Sherborn, Mass., Sept. 9, 1867.

AN EXPERT BERRY-PICKER.

The berry-pickers, comprising both young and old, have become a numerous and respectable body, and among them are not a few of your fair and intelligent readers. Why should not some record of their successful labors find a place in your columns. We were favored with an accurate account of berries picked by Miss Ellen M. Wellington, of Ashby, in 1865, which we think it would be hard to beat, though we were told by the young lady herself that she could have done even better had she really tried. In one day she picked thirty-eight quarts of blueberries; the next day sixty quarts and a pint. These were sold at the door for four cents per quart. In July, the same year, she picked 583 quarts of blueberries and whortleberries in twenty-three days which were sold at the door for $37.37. She picked in all, that year, thirty-two bushels and twelve quarts, which were sold to the collectors for $72.02. The next year, 1866, she picked and sold, as before, whortleberries and blueberries to the amount of $50.25 W.

Sept. 7, 1860.

SWEET TOMATO PICKLE.

Will you please reprint for the benefit of your readers the following, which I have found by repeated trials to be the best receipt of the kind that has yet met my notice.

Slice one gallon of green tomatoes, and put a handful of salt to each layer of tomatoes. Let them stand twelve hours, then drain off the liquor, and add to them two green peppers, and from two to four onions sliced. Take two quarts strong

cider vinegar, a little more than one-half pint of molasses, and two tablespoonfuls of whole mustard, and a teaspoonful of allspice, same of cloves, and heat until it begins to boil. Then put in tomatoes, onions and peppers, and let them boil ten minutes. Pour them into a stone jar and seal tight, and put them in a cool place for a fortnight; after which they will be ready for use and will keep a year without scalding. OUTIS.

A COMPLIMENT TO THE FARMER FROM MAINE.

I send enclosed two dollars and fifty cents for your paper one year, in advance. I am the oldest subscriber there is about here, and without boasting, may say that I have done more to extend the circulation of the FARMER than any man in town. The NEW ENGLAND FARMER is the best paper for farmers that was ever sent into this State. I manage all of my farming and trading by its suggestions, and would not do without it for $50 per year.

Anson, Me., Aug. 23, 1867.

CURE FOR STIPLE.

Take white of one egg, one table spoonful honey, one table spoonful fine salt, beat well together, adding tea spoonful spirits of turpentine. Then rub on thoroughly, and dry in with a hot shovel.

HIRAM C. DRIGGS.

Bradford, Vt., Sept. 9, 1867.

GRAFTING GRAPE VINES.

Your "New Subscriber" of Campello, inquires about grafting grape vines, and you wish correspondents to say something to meet his case. If the following is considered of use to him you may print it.

The fruit growers of this neighborhood do not succeed well in grafting the vine, and consider it cheaper to buy large, two or three year old vines of the variety desired. The sap of the vine flows so rapidly immediately after the frost leaves the ground in the spring, that in most, or nearly all cases, the scion fails to unite with the stock, and soon perishes. The most likely way to succeed is to graft in the fall, as early as possible. Expose the crown of the root, cut off the vine two inches above, and "cleft graft" as we do an apple tree; use a scion with two buds, and cover up with soil to an inch above the first bud. Just before the ground freezes up place an old box or large flower pot over it, and then soil and straw sufficient to prevent the scion from freezing, and by spring, in most cases, the union will be complete, or sufficiently so to prevent the death of the scion by the flowing of the sap in spring. JOHN FLEMING.

Sherborn, Mass., Sept. 9, 1867.

SALT AND LIME FOR HAY.

I have put in several tons of hay on the Metcalf plan this season, and have also been informed that the Shakers of Enfield, N. H., put in a barnful last year with the lime alone, and that their hay came out bright and nice. H. H.

Corinth, Vt., Aug. 25, 1867.

RINGING APPLE TREES.

The accounts published in the FARMER last spring of the result of ringing apple trees, induced me to try the experiment on a young, thrifty tree that never had borne but one apple, although it had blossomed full several years. The bark was removed when in full blossom 2½ inches in length around one limb that was one inch in diameter. The result is that there now are about fifty apples on that limb, and only two on the whole of the rest of the tree. Seeing that Mr. A. H. Wheeler, of the Concord Club, is cutting down his orchard because of its unfruitfulness, I would recommend the experiment to his consideration.

AN APOLOGY FOR A FARMER.

Wardsboro', Vt., Aug. 15, 1867.

SOWING SPRING GRAIN IN THE FALL.

Is there any kind of spring grain that can be put into the ground in the fall of the year, and bring a crop that will be profitable? If so, please inform me what it is and when to sow it.

Roxbury, Vt., 1867. YOUNG FARMER.

REMARKS.—Spring rye or spring wheat may be made to become fall rye or fall wheat, by continually sowing the products of the same seed in the fall, but the crop would not at once be profitable. It would have to go through a *change of habit* before a paying crop would be produced. That is, there would be no change in the nature of the plant, but only in its habits.

IMPLEMENT TRIAL AT UTICA.

The trial which was commenced at Utica on the 11th of September, was an adjournment from that held last spring in the rainy week. The following are the entries, then made:—

Plows.

Class 1.—A sod plow for stiff soils. F. F. Holbrook, Boston.

Class 2.—A plow for stubble land in stiff soils. F. F. Holbrook, Boston, and Collins & Co., N. Y.

Class 3.—A sod plow for sandy soils and light loams. A. L. Bradley & Co., Trenton, N. J.; F. F. Holbrook, Boston, Mass.

Class 4.—A plow for stubble land, which will cut a furrow twelve inches deep, with three horses, which will raise the lowest soil to the surface of the furrow. F. F. Holbrook, and Collins & Co.

Class 5.—A Michigan soil and trench plow. F. F. Holbrook, Boston.

Class 6.—A sub-soil plow in connection with an ordinary plow. R. J. Wheatley, Duquoin, Ill.

Class 7.—A ditching plow for opening drains A. P. Routt, Somerset, Va.

Class 8.—A machine for excavating ditches for underdraining. E. Heath, Flowerville, N. Y.

Class 9.—A steel plow for alluvial and unctuous lands. Collins & Co.

Class 10.—A swing or side-hill plow. F. F. Holbrook, Boston, and L. D. Burch, Sherburne.

Harrows and Cultivators.

Wm. H. Burtis & Co., Watertown, N. Y., one in each class; J. E. Morgan, Deerfield, one; Fowlard House, Oneonta, N. Y., two-horse Cultivator; N. Nishwitz, Williamsburg, N. Y., Pulverizing Harrow; N. Houks, Appleton, Maine, one-horse Cultivator; Brown, Seirberling & Co., Massilon, Ohio, a Shovel Plow and Cultivator combined; F. F. Holbrook, Boston, Mass., a Cultivator; Alden & Co., Auburn, N. Y., Cultivator.

The small number of entries, and the comparatively little interest which the trial excited is accounted for by the correspondent of the *Country Gentleman* on the assumption that "a very small portion of the numerous excellent plows, now made throughout the country, are patented; and the manufacturers would derive but little benefit from premiums, as the higher

the commendation, the more numerous would become the imitators, without any protection to the original devisors and makers," while others see in the strictness of the rules of the managers, and the severity and thoroughness of the test proposed, a reason why so few manufacturers were willing to enter their implements. This trial, though under the charge of the New York State Agricultural Society, was open to all implement makers in the country. The judges who were present were John Stanton Gould, of Hudson, Chairman; Prof. B. Pierce, of Harvard University; E. R. Potter, of Kingston, R. I.; Peter Crispell, Kingston, N. Y.; H. Waterman, Hudson; George Geddes, Syracuse, and J. McGraw, Dryden, N. Y.; Hon. Sanford Howard, of Michigan, together with President Patrick and Secretary Johnson.

We make the following extracts from the report of "J. J. T." the correspondent, of the *Country Gentleman*, who personally witnessed the trial:—

The swivel plow, for side-hill as well as level ground, from F. F. Holbrook of Boston, was submitted to a severe test on a piece of hard and gravelly land, with a stony undersoil. Although subjected to this difficult test, it proved itself greatly superior to the old swivel plows, effecting a complete inversion of the sod, and doing fair work. Burch's swivel plow, from Chenango county, and known as the Chenango Clipper, was tested briefly, and appears also to do fair work. The swivel plow of C. W. Sykes, Suffield, Conn., entered only for exhibition, quite different in construction from other reversible plows, attracted much attention.

In addition to the preceding, the following plows were tried on these grounds: Holbrook's Universal plow, from F. F. Holbrook, Boston, as "a sod and subsoil" plow, like the double Michigan; Holbrook's plow for lapping furrows; the steel plow of W. Whateley, Springfield, Ohio; a plow cast from cast steel, from Collins & Co., New York, and made at Hartford, Conn., known as the Smith plow; the Mohawk valley clipper, from Remington & Co., Ilion; and R. J. Whateley's subsoil plow, from Illinois.

Holbrook's double mould-board, or sod and subsoil plow, cut a furrow in very hard ground, about ten or eleven inches deep, with four horses attached, throwing the sod completely under, and piling the mellow subsoil on the top. Its operation gave much satisfaction. Holbrook's lapping plow did good work, and was found, on holding, to be remarkably capable of being perfectly guided, so that a practiced hand might control it with much precision. The three steel plows from Collins & Co., W. Whateley, and the Remingtons, all did handsome work—the latter especially appeared to be much commended by the farmers present.

On the second day of the trial (the 12th) the plows were tried in what was termed stubble ground. A crop of rye had been cut from the ground; and a dense growth of grass and weeds covered the whole surface, in many places from one to two feet high. Very few plows could therefore be expected to turn under this heavy growth. All those tried here did creditable work, although most of them failed to effect a complete burying of the herbage. Holbrook's sod and subsoiler, used the previous day, but with the forward or smaller mould-board removed, and drawn by two horses, ran 11 inches deep, and threw out from the bottom of the furrow earth that had never before seen the light, covering all the grass and weeds with scarcely an exception.

Smith's cast steel plow, (from Collins & Co., New York,) designated as B No. 14, did handsome work, running 9 inches deep, and covering the grass with a little exception. Holbrook's plow No. 66 did about the same. The work of the others was less perfect, although on more favorable ground, their performance would have been nearly unexceptionable. The performance of W. Whateley's steel plow excited much commendation from most of the spectators.

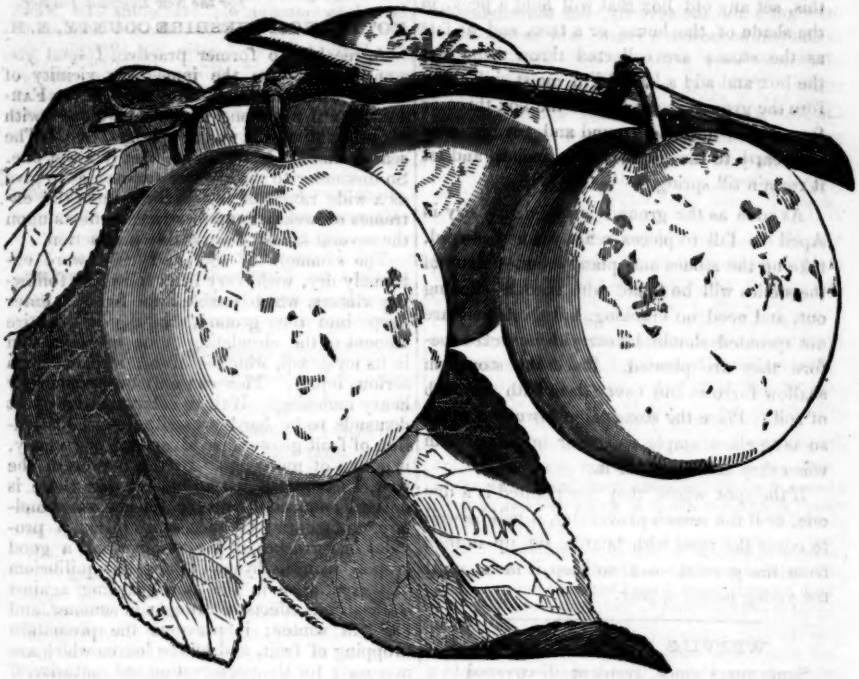
There were some fine implements in the class of Harrows and Cultivators.

Grapes on Elms.—At the winter meeting of the Illinois State Horticultural Society, the Hon. John B. Turner, a successful grape grower, during a discussion on the grape, advocated the growing of grapes on elms. He said:

"When, years ago, I taught Latin to boys, we used to read of the ancients letting their grape vines clamber on elms, but I thought little of the statement, as a practical suggestion. But I find that I cannot keep my vines out of the elms. If I plant near an elm the vine goes up into it. I have one vine that, despite my remonstrances, insists on going into the top of one of my elms. From it I sold, during the past year, $100 worth of grapes. I am therefore tolerably well satisfied with its wilfulness; for these grapes did not cost me a cent for culture or care. I am now planting live stakes in my orchard; and elm stakes they are. Such stakes will save the annual cost of training and pruning, and judging from my experience, they will insure fruitfulness."

Over-Eating Apples, or Repletion.—When this occurs, give the animal a lump of saleratus of the size of a common apple, dissolved in warm water. It is said to give almost *instantaneous* relief.

—At a late meeting of the Pennsylvania Horticultural Society, statements were made, showing the injurious effect of the air of gas-lighted rooms on the health of growing house-plants, and on the preservation of cut flowers. In reply to the remark of a member that the injury resulted rather from the dry air of furnace heat than from the effect of gas, Mr. Meehan gave instances which had come under his observation in Germantown, of people noted for their success in window culture, under the old state of things, who had failed after introducing gas, although no change had been made in their old fashioned heating arrangements.



THE WASHINGTON PLUM.

The origin of this excellent plum is somewhat remarkable. The original tree sprung up in the city of New York, on what was known as the Delancey farm, on the east side of the Bowery. Without waiting to judge of the tree by its fruit, it was grafted to some common variety. As if conscious of its innate superiority, it threw up a sucker from its natural root, which was transplanted and cared for by a Mr. Bolmar, a merchant of Chatham Street. As it came into bearing about 1818, the remarkable beauty and size of the fruit attracted universal attention. In 1821 this fruit was sent to the Horticultural Society of London, by the late Dr. Hosack, and it is now considered one of the best plums in most European countries.

Downing says the Washington has remarkably large, broad, crumpled and glossy foliage, is a strong grower, and forms a handsome round head. Like several other varieties of plum, the fruit of this, especially in sandy soil, does not attain its full perfection until the tree has borne for several years. We have measured them very often six inches in circumference, and once from Mr. Bolmar's original tree, seven and a quarter inches.

Wood, light brown, downy. Fruit of the largest size, roundish oval, with an obscure suture, except near the stalk. Skin dull yellow, with faint marblings of green, but when well ripened, deep yellow with a pale crimson blush or dots. Stalk scarcely three-fourths of an inch long, a little downy, set in a shallow, wide hollow. Flesh yellow, firm, very sweet and luscious, separating freely from the stone. Stone pointed at each end. Ripens from about the middle to the last of August.

PRESERVING PEACH STONES.

The first care is to see that they do not get dry while collecting them. In order to do this, set any old box that will hold a peck, in the shade of the house or a tree, and as fast as the stones are collected throw them into the box and add a handful of moist soil. Before the ground freezes, sink the box three or four inches into the ground and cover it over with earth to the depth of six inches, and let it remain till spring.

As soon as the ground is sufficiently dry in April to fall to pieces readily when stirred, take up the stones and plant them. Many of the stones will be found with sprouts sticking out, and need no cracking, but those that are not sprouted should be *carefully cracked* before they are planted. Place the stones in shallow furrows and cover them with one inch of soil. Place the stones about two feet apart so as to allow ample room for budding them when they are ready for it.

If the spot where they are planted is a dry one, or if the season proves dry, it will be well to cover the rows with boards, set up an inch from the ground, so as to keep it moist until the young plants appear.

WEEVILS IN GRANARIES.

Some years since, accident discovered to a French farmer a very simple and efficient method of preventing, or rather destroying, this insidious pest in corn and grain houses.

Happening to deposit, in one corner of a building in which there was stored a quantity of grain, a few sheep skins from which the wool had not been pulled, he found, upon examining them a few days after, that they were literally covered with dead weevils. The experiment was repeated, and always with the same result.

On stirring the corn, (wheat, probably,) he was surprised to find that although previously infested to a degree that forbid all hope of saving it from immediate destruction by this pertinacious foe, not a single insect was to be found among it. The experiment is certainly worth trying. Instead of the sheep skins, which are quite valuable, we might substitute those of the woodchuck, who is increasing to an inconvenient and expensive extent. What killed the weevils, whether the fatty matter on the skin, or something else, we have not been able to learn. At any rate, let us try the woodchuck skins.

For the New England Farmer.

NOTES FROM CHESHIRE COUNTY, N. H.

Agreeably to former practice, I send you some notes from the immediate vicinity of Grand Monadnoc, that the readers of the FARMER, in other sections, may compare notes with us in relation to weather, crops, &c. The season thus far has been peculiarly a wet one. So dissimilar to the last two seasons, as to give us a wide range of observation upon the extremes of weather, and its varied effects upon the several kinds of vegetable production.

The summers of 1865 and 1866, were extremely dry, with very little snow the following winters, which enabled the frost to enter deep into the ground, holding the entire amount of the circulating fluids of vegetation in its icy grasp, which is always attended with serious injury. This can only be avoided by heavy mulching. If there is but one thing that demands to be hard pressed upon the attention of fruit growers in this section of country, it is that of mulching. By the lessons of the past, I have been led to believe that there is nothing connected with the science of pomology, so essential to success as this. It provides or furnishes all the requisites of a good crop of manure, by maintaining an equilibrium of temperature in the soil, guarding against the injurious effects of drought in summer, and frost in winter; it prevents the premature dropping of fruit, and of the leaves which are necessary for the preservation and maturity of the fruit buds for another season's crop.

The apple crop of this season is quite small, the Baldwin being the only variety which is bearing to any extent. Pear trees are generally bearing well. The Bartlett, Beurre Superfin, and Louise Bonne de Jersey seem to be at home in our soil, and bear to a fault. Should the Superfin continue as it has began, it must stand at the head of field pears. It has but one fault—a tendency to overload. Of five varieties of grapes all have mildewed badly but the Monadnoc, (a seedling—fragrant,) and Delaware. The Clinton seems the worst. The Delaware is the grape for this section; it is hardy, grows steady, bears early and abundantly, and ripens its fruit. It is now, (Sept. 23,) nearly ripe. All kinds of wild berries in abundance. The blackberry crop was remarkably fine, and in view of the scarcity of the apple crop, large quantities have been preserved.

The hay crop is very heavy—the largest for many years. A fine second crop is now being gathered. Notwithstanding this bountiful crop, it becomes farmers to secure every pound of fodder possible, for our barns for many years have not been so clean of hay as at the commencement of the present hay season. The corn crop is looking well, and out of the reach

of frost. The frost on the morning of the 15th inst., killed vines and other tender plants, but did but little injury otherwise. Wheat, rye, oats and barley, have made a heavy growth of straw, but not above the average of kernel. Fields newly seeded to grass look finely—having set thick and strong. Early varieties of potatoes are rotting badly, but I think the crop of later varieties will be very good. Beans and peas have blasted badly, and the crop here must be very light. The hay and English grains have been well secured.

The time has come when *farming pays*. The long mooted question needs no further argument. So long as hay shall bring from $20 to $30 per ton, beef $8 to $10 on the hoof, and corn, rye, wheat, oats, barley and potatoes, all kinds of fruit and garden vegetables, with butter and cheese, remain at ruling prices, there can be no safer or better business than farming. L. L. P.

East Jaffrey, N. H., Sept. 23, 1867.

Remarks.—We wish to call attention to the remarks of our correspondent in relation to the importance of mulching fruit trees, in connection with the practice of Capt. Pierce, of Arlington, Mass., detailed in another column.

For the New England Farmer.

THE GARDEN IN OCTOBER.

The time for cessation of active labor in the garden for the season is near at hand, and may be suddenly terminated, so far as to its furnishing fresh vegetables, &c. Owing to the excessively wet and unusually cool and damp season, our garden has not given the satisfaction in respect to some kinds of vegetables and fruits we hoped for when we planted in the spring; yet, on the whole, we have little to complain of. What though the squash falls short of the usual abundant supply, or the plum and cherry failed, or a few grapes were belated in ripening, have we not a good supply of most other vegetables, and the different varieties of small fruits, sufficient for present use, and a supply laid away for winter?

Besides gathering and properly storing such of the crops as cannot be used or marketed before hard frosts, there is much that may be done to enhance another year's profit. Let us then keep good heart and go at it with a will, endeavoring to remedy any failures of the present season. Unquestionably, by superior watchfulness, and better, and more thorough preparation and culture, much of the want of success in a bad season might be overcome. Heavy soils may be much ameliorated by fall ploughing, throwing into ridges so that the frosts, &c., of a winter's season may act to pulverize and fine them. Perhaps some portions of the garden may need underdraining; the heavy rains and great amount of waterfall of the past season, will have shown any portions where drainage is necessary. If possible to carry off any surplus water by drains, let it be done this fall, without risking the results of another year. The good effects of manure are not fully received when the soil is saturated with water, neither will plants grow as freely when the soil is wet or water comes near the surface. The evaporation which is constantly going on from a wet soil, tends to lower the temperature and retard growth. Wet ground cannot be worked as early in the spring, and is sooner affected by frosts in the fall, than dry. Continue the work described for September; some of which is equally applicable to October.

Asparagus.—If new beds are desired, and plants are at hand, they may now be made. The best results are had where the ground is worked *deep, and well filled* with manure. Set the plants three inches below the surface, not less than one foot apart each way. Old beds may have the tops cut off and cleared, and a liberal coat of coarse manure spread over the bed the last of the month, or before the ground freezes hard in November.

Beets.—Pull at the approach of frost, and cut off the tops, not too close, and dry a little in the sun, then place them in the cellar and pack in sand or earth to keep them fresh and good for winter.

Blackberries.—Muck, leaf mold, or well decomposed composted manure can be applied to the soil around the roots to advantage, and will increase the fruitfulness of another season.

Currants and Gooseberries.—Now is the time to make cuttings and plant to increase the plantations. Select well ripened wood of the last growth, and cut them about a foot long, and if you wish to grow them in tree form, cut out, with a sharp knife, all the eyes except two or three at the top, and set them in the ground even, with the lower eye left on; fill in and press the soil closely around the lower end, as upon the thoroughness of this in a great measure depends the success of growing cuttings of any kind. If a bush form is desired instead, the buds may be left on. Cut square off close below a bud in making cuttings. After planting, cover with a coat of leaves or the like.

Cabbage.—Plants sown this fall for early spring planting, may be transplanted into cold frames. Set them deep, down to their leaves in the soil, as the stem is the most tender part; set thus, and watered, they will need no outside covering till near the end of November. The late heading kinds may be left till hard frosts, without injury, before gathering.

Carrots.—Harvest before severe frosts, as they are rather sensitive to cold, and preserve as directed for beets. The tops may be fed to cows or other stock with advantage.

Herbs.—Gather and preserve such as have not already been gathered.

Mushrooms.—This is a production of growing importance in certain localities; being

much sought for by a class of epicures fond of rare dishes. They are somewhat particular as to their growth and treatment. Now is a good time to construct the proper beds. The details of making the beds and growing the mushroom is too lengthy for these notes, and is merely alluded to as a reminder.

Continue to do all seasonable work, gathering crops, seeds, &c., preparatory for winter, and to advance or lessen the spring's work.

WM. H. WHITE.

South Windsor, Conn., Sept. 26, 1867.

BEST ORCHARD IN MASSACHUSETTS.

Having heard much of Capt. George Pierce's orchard, in Arlington, we took occasion to visit it on Thursday week. Its area is about five acres, and comprises about 200 trees. The ground is under cultivation,—squashes, cauliflowers and other vegetables being grown among the trees. Capt. Pierce does not believe in growing grass in orchards, nor weeds, but holds to the thorough tillage thereof. His squash crop last year was some twenty tons on the part of the orchard thus used. The crop is less bountiful this year than last, but will, probably, net him as much money, as they sell much higher than they did last year. He plants his squash hills twelve feet apart each way. He thinks his squash crop about as good as if there were no trees. The trees of the younger portion of the orchard are thirty-six feet apart, and the older, forty or more.

Mulching is practiced by Capt. Pierce, as relates to his bearing trees; and such is his faith in this, that he said he should do it, did his swamp hay thus used cost him $40 a ton; it cost him this year about $15, hay being scarce and high. His mulch cost him $80 this season. After the fruit is gathered, the mulch remaining undecomposed is gathered and saved for another year; but if too far gone for this, it is spaded under. He applied it about the first of July this season. It serves to keep the weeds in check and furnishes a nice clean bed for the apples to drop upon, thus preventing bruising, and keeping them as clean as while hanging upon the trees.

The *Williams Apple* (Williams' Favorite, Early Red) is his leading early variety, of which he has 38 trees, from which he has gathered and sold over 200 bushels this season, a few more still remaining on the trees, 7 bushels having been gathered on the morning of the day we visited the captain. They sold for $6 a bushel, the highest this year, and last year the highest brought him $8 a bushel. He regards this as the very best market apple known at present, for the season at which it ripens.

As they ripen and fall, they are picked every morning, sorted, boxed and sent to market on the following morning. The greatest amount gathered on any one day was 15 bushels. Capt. Pierce's Williams sell higher in market than others of the same variety, for, owing to his method of pruning, they are larger and more highly colored.

The Porter. His next market variety for the season is the Porter.

Baldwin Apple. Of this variety Capt. Pierce has the most remarkable show we have ever seen. The Baldwin and Porter are of the older portion of the orchard, and the trees are much larger than his Williams are, as the latter were grafted on to the former. The Baldwin trees are very heavily fruited, most extraordinarily so. It is estimated that one tree will produce, some say—and they are apple buyers and know what they are talking about,—from 20 to 25 barrels; and there are other trees not far behind this in production. The former tree, according to our pacing, is some 50 feet from the extreme terminus of the limbs on one side to that of the same on the opposite side. The tree's stem or trunk, from actual measurement near the ground, is 5½ feet in circumference, less than two feet in diameter. While the complaint was often heard in the early part of the season, that apples fell prematurely, Capt. Pierce says, "too many of mine hang on the trees."

Among his miscellaneous varieties are the Gravenstein, the River, the Sour Bough, Hubbardston Nonsuch, Northern Spy, Wine Apple, with some others not recollected. But as seen, Captain Pierce devotes his attention to the growing of the leading, because the most popular, varieties of market apples. It would be hard to name three other varieties of the apple which net so good returns as Captain Pierce's three leading sorts, the Williams, the Porter, and the Baldwin.

Pruning Apple Trees. Captain Pierce stated that he prunes about the last of May or first of June, he having satisfied himself that where limbs or branchlets are to be cut off, there is no other period of the year so favorable as this; where much wood is to be removed he does this when there is no crops growing on the ground, cutting off the limbs with a saw, about six inches or so from where they are to be cut again at the season for healing over or growing over. The fitness of this practice is clearly confirmed by the observation of all who visit his orchard.

The Form of the Trees his pruning has given is particularly noteworthy. Having alluded to the splendid coloring of his Williams, it is owing, he said, to my pruning, so as to let in the sun. His Williams trees, we neglected to say, bear every year.

In conclusion, we asked Captain Pierce, How is it that your trees are over-fruited, as it were, while almost everybody else complains that he has no fruit, though plenty of bloom? Said the sage orchardist: "I prepare and till my ground well, keep off and destroy caterpillars, canker-worms, web-worms, prune my trees myself, &c. It is no matter what I am

doing, if web-worms or caterpillars are manifested from tent or web, I go and destroy them forthwith; in brief, I comply with all the conditions, so far as I know them, of a good apple crop, and I get one annually, while my neighbors, failing to do so, have become discouraged and are and have been digging up their trees." Is he not right, reader? Is it not just as impossible for apple trees to make fruit without suitable culture and plant food, as it is for a cow to make a good mess of milk without plenty of good and suitable feed?—*Boston Cultivator, abr.*

HINTS ON MAKING GOOD BUTTER.

Mrs. N. Noman, of Adrian, Michigan, furnishes the following sensible directions and cautions in respect to the management of milk, cream and butter, in a letter addressed to the New York Farmers' Club:—

Set your milk where the wind will not blow on it, for the wind dries the cream, and dried cream will not make butter. In warm weather keep your cream still, for if you want your cream to become sour stir it often. Very sour cream will not produce a good quality of butter. In cool or cold weather, don't think that you must let your milk set until it is sour before you take off the cream. Forty-eight hours is sufficient time for milk to produce all the cream it is capable of producing. In a right temperature it will rise in less time. Much poor butter is the result of bad management of the cream. It is a good plan in warm weather to save strippings, about a quart night and morning from each cow, and churn every day. Churn your cream as cool as possible in warm weather. Much butter is spoiled by churning the cream too warm. If your butter comes rather warm, put in twice the salt you usually do, work your butter just enough to mix the salt well through it, and set it away in a cool place for twenty-four hours, then take it up and work it over. Much of the salt will be dissolved and will work out. Thoroughly cleanse your butter with salt. Use no cold water about your butter, for you cannot cleanse butter or any other lump of grease with water. Some women talk as though butter was not fit to eat unless it is first washed with cold water. If butter is not fit to eat without being washed with water, it is not by being washed. Water always damages butter. Butter that is washed with water is not fit to pack, for it will not keep. When the brine that oozes from your butter as you work it is clear, that is, clear from milk—it is worked enough—don't give it another stroke, except to get it into shape. Pack your butter in perfectly clean vessels, and keep it well covered with strong brine. When you use your butter set it on the table just as you cut it out of the tub, for it is injured if worked after it has been packed.

THE FIRE ON THE HEARTH.

BY MRS. FRANCES DANA GAGE.

There is a luxury rare in the carpet of Brussels,
And splendor in pictures that hang on the wall,
And grace in the curtain, with rainbow-hued tassels,
And brilliance in gas-light, that flashes o'er all;
But give me the glow of the bright-blazing fire,
That sparkles and snaps as it echoes your mirth,
And leaps, in its joy, up the chimney still higher,
When the cold winds without make us draw near the hearth;
The old-fashioned fire, the cheerful wood fire,
The maple-wood fire, that burns on the hearth.

As I feel its warm glow, I remember my childhood,
And the circle of loved ones that drew round our board;
The winter eve sports, with the nuts from the wild-wood,
The apples and cider from cellars well stored;
I hear in its roar the wild shout of my brothers,
And the laugh of my sisters, in innocent mirth,
And the voice of my sire, as he reads to my mother,
Who knits by the firelight that glows from the hearth;
The old open fire, the health-giving fire,
The home-cheering fire that glows on the hearth.

Like the strong and true-hearted, it warms its surroundings,
The jamb and the mantle, the hearth-stone and wall,
And over the household gives out its aboundings,
Till a rose-tinted radiance is spread over all.
If you lay on the fuel, it never burns brightly,
Till the day's work is done, and we lay by our mirth;
Then we gather the embers and bury them lightly,
At morn to renew the fresh fire on the hearth—
The old-fashioned fire, the life-giving fire,
The broad-glowing fire that burns on the hearth.

It reminds us of friends that we draw to the nearer,
When winds of misfortune blow heavy and chill,
And feel with each blast, they are warmer and dearer,
And ready to help us and comfort us still—
Friends that never grow cold till the long day is ended,
And the ashes are laid to their rest in the earth,
And the spirit, still glowing, to God hath ascended,
To rekindle new fires, like the coal on the hearth;
Then give me the fire, the fresh-glowing fire,
The bright open fire, that burns on the hearth.

You will tell me a *stove* heats a room in a minute,
Expels the cold air, and I know it is so;
But open a door, is there anything in it?—
Your warmth is all gone—there's not even a glow;
Just like modern friends, one is every day meeting,
All professions and smiles, as the impulse gives birth,
But as black and as cold, at the next hour of greeting,
As your stove that has banished the fire from the hearth;
Then give me the fire, the old-fashioned fire,
The bright-glowing fire, that burns on the hearth.

EXTRACTS AND REPLIES.

GARGET IN COWS.

It is about fifteen years since I commenced using saltpetre in case of garget, or swelled or caked bag. As soon as the disease shows itself, take one tablespoonful of saltpetre for a dose, which is to be administered three days in succession, and then wait a day or two, and if the cow is not relieved repeat the doses. In extreme cases the doses may require to be repeated three times. If this does not cure, you may as well turn the cow out to fat. If the cow will not drink it in slop nor eat it in meal or other mess, take a common sized potato, cut it in the middle, take out the inside, so that it will hold the dose, put the saltpetre into the cavity, put the halves together, and put it down among the cow's grinders and she will eat it readily. I have received four times the benefit from the above treatment than I ever did from any other. I have also dissolved the saltpetre in cold water, and rubbed the udder thoroughly with it. In ordinary

cases of caked bags, with cows or heifers, the bathing with saltpetre and cold water is as good as anything that can be done. O. FOSTER.

Tunbridge, Vt., Sept. 5, 1867.

CHEMICAL TERMS.

"Some knowledge of chemistry has now become a necessity to agriculturists;" and, notwithstanding the fair presumption, that only a small minority of your readers are conversant with vegetable physiology, or would be interested in its discussion, I, as a portion of the agricultural readers of your paper, am pleased to observe that you have admitted to your columns some articles on that most interesting branch of organic chemistry; and that you are now publishing elementary instruction for farmers, under the title of "Chemical Terms."

Good instructors are wont to encourage their pupils to ask questions, that they may the more readily remove the difficulties that are constantly presenting themselves to learners.

Emboldened by such considerations, I submit the following—quoting from an article in your issue of the 7th of September, inst.

"*Synthesis.*—It means to reconstruct, to reunite the separated elements."

Is not the putting together, in proper proportions, of the elements of a compound body, whether or not such elements have been previously united, *synthesis*? Is synthesis, necessarily, a *re*-construction, a *re*-union?

"*Solution.*—When a solid body is dissolved in a liquid, so as to become clear and transparent, it is called a solution. In this case the particles are so minutely divided that they are not perceptible by the eye." According to a strict grammatical rendering of the first part of this last quotation, the pronoun (*it*) represents "a solid body;" and the definition may be correct, when applied to many, and perhaps to a majority of soluble bodies; yet as a general definition, it conflicts with numerous facts.

Are not the various dyes, (before precipitation,) which are neither "clear" nor "transparent," true solutions of coloring matters? "The particles," as such, are undistinguishable both in the solid state, and in solution; but in colored solution, they are not, in the aggregate, invisible.

It appears to me that the definitions of chemical terms, found in our standard works, having passed the scrutiny of most eminent chemists, are not susceptible of much improvement at our hands, either in clearness or accuracy.

Please compare the following definition, from "Webster's Last Unabridged," with that which I have under consideration:

"*Solution.* Def. 4.—The action of an attraction between one or more solids and a fluid when brought in contact, by which the former become themselves fluid, and are diffused through the latter without other change or loss of properties; the state of a body as thus diffused." I. B. HARTWELL.

Wilkinsonville, Mass., Sept. 13, 1867.

A SICK OX.

I have an ox who breathes heavily, and occasionally throws mucus from the nostrils. The first symptom of disease I noticed was a cough, which appeared in April last, and has continued to this time. I bound a bag of soap and salt on the head between the horns, and then tried spirits of turpentine every day for two weeks.

Is there such a thing as cattle having glanders?

Warwick, Mass., 1867. O. P.

REMARKS.—From the above description, we should think there was some obstruction in the nasal gland of the animal; some foreign substance introduced there which causes irritation, cough and mucus. Send for your physician to examine him if you have no veterinary practitioner near. At any rate do not apply violent remedies.

A BAD HUMOR IN A HORSE.

I would like information in regard to a disease in a horse which I bought somewhere about a year ago, which had been much heated by being driven too hard. He is now troubled by a humor which comes out all over the animal in small scabs, making it very uneasy by spells during each day, during which it rubs its mane and tail violently. Can you or any of your readers inform me how to get rid of the humor, and relieve the animal?

Sharon, Mass., Sept. 23, 1867. J. B.

REMARKS.—Although the disease in this case may be different from the mange, we think our correspondent will be interested by the following extracts from Youatt's description of that disorder and directions for its cure. Every case of itchiness of the skin, he says, should be regarded with suspicion, as the disease, which is similar to that of the itch in the human subject, affects most of our domestic animals.

"In an animal affected with mange, the cuticle and the hair fall off, and there is, as in obstinate surfeit, a bare spot covered with scurf—some fluid oozing from the skin beneath, and this changing to a scab, which likewise soon peels off, and leaves a wider spot. The mange generally first appears on the neck at the root of the mane, and its existence may be suspected even before the blotches appear, and when there is only considerable itchiness of the part, by the ease with which the short hair at the root of the mane is plucked out. From the neck it spreads upward to the head, or downward to the withers and back, and occasionally extends over the whole carcass of the horse. Amidst the whole list of diseases to which the horse is exposed, there is not one more highly contagious than mange. If it once gets into a stable, it spreads through it, for the slightest contact seems to be sufficient for the communication of this noisome complaint. Mange has been said to originate in want of cleanliness in the management of the stable. The actual cause of mange, however, is the existence of a parasite burrowing in the skin. The name of the insect is *Acarus equi*, and is precisely analogous to the parasite producing the itch in man. Physic is the first step in the progress towards cure. There must also be some local application. That which is most effectual in curing the itch in the human being must form the basis of every local application for the cure of the mange in the horse. Sulphur is indispensable in every unguent for mange. It is the sheet anchor of the veterinary surgeon. In an early and not very acute state of mange, equal portions of sulphur, turpentine, and train-oil, gently but well rubbed on the part, will be applied with advantage. A tolerably stout brush, or even a currycomb, lightly applied, should be used, in

order to remove the dandriff or scurf, wherever there is any appearance of mange. After that, the horse should be washed with strong soap and water as far as the disease has extended; and, when he has been thoroughly dried, the ointment should be well rubbed in with the naked hand, or with a piece of flannel. More good will be done by a little of the ointment being well rubbed in, than by a great deal being merely smeared over the part. The rubbing should be daily repeated. During the application of the ointment, and as soon as the physic has set, an alterative ball or powder, similar to those recommended for the other affections of the skin, should be daily given. If, after some days have passed, no progress should appear to have been made, half a pound of sulphur should be well mixed with a pint of oil of tar, and the affected parts rubbed, as before. On every fifth or sixth day the ointment should be washed off with warm soap and water. The progress towards cure will thus be ascertained, and the skin will be cleansed, and its pores opened for the more effectual application of the ointment.

The horse should be well supplied with nourishing, but not stimulating food. As much green feed as he will eat should be given to him, or, what is far better, he should be turned out, if the weather is not too cold. It is necessary, however, to be assured that every mangy place has been anointed. It will be prudent to give two or three dressings after the horse has been apparently cured, and to continue the alteratives for ten days or a fortnight."

After a cure has been effected, the blankets, harness, currycomb, rack, manger, and everything about the horse must be thoroughly purified with a solution of chloride of lime.

SICK TURKEYS.

In addition to my inquiry of August 26th, regarding sick turkeys, I would like to ask if the disease I refer to is not what is recorded in the hen books as "Shooting Red," or the time when the turkeys head turns to a red color, and the turkey begins to come to maturity. The hen books give very little information on this disease and the remedy. Can you or some of your subscribers give me more light on this subject? G. E. H.

Shrewsbury, Mass., Sept., 1867.

REMARKS.—In a long experience in raising turkies, we never met with a case of the *shooting red*, and must, therefore, call upon some of our better informed correspondents to come to the assistance of "G. E. H."

BEES AND PEACHES.

One of my neighbors has made complaint that *my bees* are destroying his peaches, and that I keep so many bees that they cannot get enough at home and have to go abroad to get their living! The peaches alluded to, wither and rot and fall to the ground. There are plenty of bees owned in the neighborhood, and I consider the *accusation absurd*, that *my bees* are the *sole perpetrators* of the deed, providing that bees *are injurious to peaches!* for I think that they are as likely to go quite a distance from the hive to gather sweets for their sustenance as to remain near at home.

Will you please to inform me through the FARMER whether bees are or are not injurious to peaches? J. A. R.

Brookfield, Mass., 1867.

REMARKS.—We have watched the action of bees, wasps, hornets and other insects upon fruit for many years, but have never known them to injure it while in a perfectly sound state. If the skin of the peach is broken by a blow, or by cracking, and the juice flows out, the bees soon know it and will help themselves to a meal; so will wasps, hornets, flies, and probably other insects. We do not know that bees have the power of perforating the skin, if they would.

THE SEASON, CROPS AND INSECTS, IN WORCESTER COUNTY, MASS.

The first crop of hay was a maximum yield, and notwithstanding the rainy season, was secured in fair order. The second crop, or rowen, is abundant, beyond all precedent within the memory of an old man. Oats, above medium. Barley good. Early sowed spring wheat, first rate, as usual; late sowed, worthless, as usual. Corn, below medium, and has been considered rather late, but with the fine weather, it is now rapidly passing the boundary of danger from frost. Potatoes are believed to be a complete failure on all wet land, and they do not promise more than half a crop on such lots as have not yet been visited by the rot. It is the general opinion of farmers that the rot of the tuber will yet be as universal as is the blight of the tops, from which no potato field escapes.

Small fruits have been most abundant. Peaches few; pears are plenty, but crack badly, and lack their usual flavor. The crop of apples is, perhaps, a one hundred per cent. improvement on last year, but is still one of the smallest.

Canker worms have been about us for a few years past, but this year they were in *diminuendo*. The tents of caterpillars were few and far between. The Turkish curculio, in spite of all our jarring and other warfare, offensive and defensive, was present in sufficient numbers to destroy, as usual, nearly all the plums, and to disfigure what few apples we have. The white grubs, or larva of the Dor beetle, have seriously injured many corn fields, while a certain odious and odorous little animal is now doing good service in removing the grubs from the corn hills. I. B. HARTWELL.

Wilkinsonville, Mass., Sept. 13, 1867.

GRAFTING THE GRAPE.

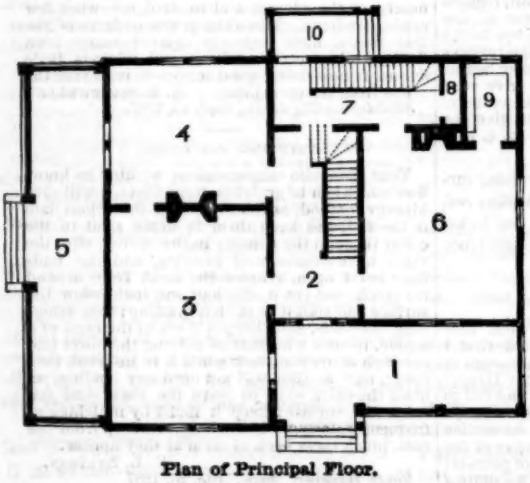
Your Campello correspondent wishing to know how and when to graft his grape vines, I will give him my method, as follows:—Cut the scions late in the fall, and keep them in damp sand in the cellar through the winter; in the spring, after the vines have commenced growing, and the buds have burst open, remove the earth from around the stock, and cut it off about one inch below the surface and split it as in cleft grafting; take scions with two buds, and sharpen them in the form of a wedge, in such a manner as to bring the lower bud one inch above the stock when it is inserted, then insert, and as they will not need any binding, replace the earth so as to leave the lower bud *just below* the surface; keep it moist by mulching or frequent watering. If suckers come up from the root, pinch them back as often as they appear.

B. L. STETSON.

South Hanover, Mass., Aug. 26, 1867

A SUBURBAN OR VILLAGE RESIDENCE.

The accompanying design is an example of a class of houses suitable for small lots in the immediate neighborhood of cities or villages, drawn for the FARMER by George E. Harney, Esq. Its form and the arrangement of rooms, &c., may afford hints to those who do not wish to copy all its features. The following description is furnished by the artist, who estimates the cost of its construction, built of wood, at about $4000, with prices of labor and material at current rates before the war.



Plan of Principal Floor.

No. 1 is the front entrance portico, opening into the hall, No. 2, 8 feet wide, and containing front stairs to chambers. The first door on the left opens into the parlor, No. 3, 15 feet by 20, lighted by two mullioned windows, one of which reaches to the floor and opens upon the veranda, No. 5. The library, No. 4, is 13 feet by 15, and opens upon the veranda in the same manner as the parlor. No. 6, the dining hall, measures 15 feet by 17½, and contains a large closet, No. 9, fitted up with a dumb waiter rising from the kitchen below. No. 7, the back entry, measures 6 feet by 16,

contains stairs to chambers and basement floors, and opens upon a gallery, No. 10, leading to the yard; under the gallery is the yard entrance to the basement.

The second floor contains four good sized chambers with bathing-rooms, dressing-rooms and closets. In the attic, which should be finished throughout, will be three large bed-rooms, besides a storage for trunks, &c. The first story is 11 feet high in clear, and the second 9½ feet.

AGRICULTURAL ITEMS.

—Sheep will not bark trees that are whitewashed with a little sheep manure in the wash.

—The maple sugar manufactured in Vermont is nearly equal in value to its products of wool.

—A coating of three parts lard and one part rosin, applied to farm tools of iron or steel, will effectually prevent rust.

—The remarkable fertility of the waters of the river Nile, in Egypt, was ascribed by Baron Humboldt to a slime, the product of fish.

—A proposition to sell all fruits by weight instead of by the box, basket or other measure was received with great favor, and passed unanimously, by the American Pomological Convention.

—The Walter Wood Reaper Factory, at Hoosick Falls, N. Y., employs about 400 men, and is capable of turning out 50 machines per day. Sales last year amounted to about a million of dollars.

—A correspondent of the Iowa *Homestead* says he presumes that in Van Buren county alone $15,000 would not replace the trees that were destroyed by rabbits in that county last winter.

—J. F. Simmons, of Iowa, writes to the New York Farmers' Club, that his experience in ploughing in buckwheat as a fertilizer, had convinced him that it was not only an exhausting crop, but that it poisoned the soil.

—Prof. Swallow says of the white oak and post oak lands of Missouri, that "the subsoil is usually richer than the surface, and deep plowing makes a vast difference in their productive powers. These lands are very superior for fruit culture.

—The Cotswold ram, and other sheep, which we mentioned a week or two since, as having been purchased in England by Mr. Loomis, of Windsor Locks, Conn., have arrived at his farm. Mr. Loomis remains abroad until November.

—An Iowa correspondent of the *Rural American*, lays down land to grass by sowing the seed immediately after harvesting his oats, trusting to the cattle, which are turned in to pasture off the stubble, to tramp in the seed.

—A correspondent of the *Rural World* uses a medicine for the cure of slobbers in horses, that though infallible, is not popular because it is so simple, handy and cheap. A dose or two of from one to two gallons of dry wheat bran has never failed with him.

—In reply to an inquiry addressed to the New York Farmers' Club, as to the advantages of the interior of Long Island, for market gardening, it was stated that the Long Island railroad will not take manure as freight, and that the general impression is, that the soil is too poor.

—A Wisconsin wine maker was overtaken last fall by cold weather, and some 5000 lbs. of his grapes were frozen up in boxes. Wine made from these grapes in April was "one hundred per cent. better than that made from the same quality of grapes in the fall."

—Dr. J. A. Warder, alluding to grape soils, states that it is the very common opinion, after many years, experience, of those who have been eminently successful in the culture of the vine, that the clay cannot be too hard and compact for the roots of the grape to penetrate.

—A mixture of gelatine and glycerine, is liquid while hot, but on cooling it becomes solid, retaining considerable elasticity and toughness. The neck of a bottle dipped into this melted compound is covered with an air-tight cap, which can be made as thick as desired by repeating the operation.

—The subject of destroying wire-worms was discussed by the Herkimer County, N. Y., Farmer' Club, and Judge Owen said he had tried many things to kill them off ineffectually. Finally he let a field go fallow one year, plowing it three or four times. The worms got starved and left the premises and have not returned yet.

—T. Jones, South Hadley, Mass., complains in a letter to the New York Farmers' Club of fraud in new strawberry plants. He has now half an acre of fancy, high-priced kinds, and the cost of plants and of cultivation has been $500, while he has received hardly as many cents. Of twenty kinds only two are valuable.

—The Paris *Kentuckian* says "Mr. S. W. Tevebaugh, of this county, has shown us some singular grains of corn, in which the grains are doubled, each grain having a separate heart. He accidentally noticed a few grains as he was shelling his seed corn last year, which he planted, and they produced ears of corn with all the grains doubled, and two stalks to the grain."

—The influence of food on the quantity of milk is very striking. A half starved cow not only yields but little milk, but what it yields is miserably poor. On the other hand, the liberal supply of food rich in nitrogenous and phosphatic elements of nutrition tell directly on the milk. Nothing, therefore, can be more injudicious than to stint dairy cows in food.

—The chicken cholera that has proved so fatal in many places at the West, is ascribed by R. H. Murray, of Calumet, Ill., to a species of putrefac-

ture caused by a too exclusive barn-yard diet in hot weather. He has been successful in its cure by a mixture of a small teaspoonful of cayenne pepper and a tablespoonful of charcoal with a quart of corn meal dough fed to the chickens.

—Brother Boylston, of the Amherst, N. H., *Farmers' Cabinet*, is merry over his election to the Bench of the "Bread, Butter and Honey" Circuit of the State Agricultural Fair of New Hampshire. He is determined to do his whole duty, and hopes that his "Opinions" will be such as to honor the State. We have no doubt that his most sanguine anticipations will be more than realized.

—B. McClure states in the *Practical Farmer* that feeding rusty straw to cattle and horses has a very injurious effect upon their health and efficiency. The class of diseases induced by this aliment are marasmus, glanders. farcy, shin diseases, catarrhal affections and watery swellings of the body and legs. He adds that during the last eight months, out of 700 horses fed upon such straw, from 45 to 50 were on the sick list.

—Having been cured of rheumatism by the following prescription, Mr. William Bassett of Birmingham, Michigan, communicates it to the New York Farmers' Club. Sarsaparilla root, sassafras chips, and gentian root, of each one ounce; gum guacum, half ounce; iodide of potassium, one-fourth ounce. Simmer the first four articles in a gallon of water to half a gallon; when nearly cold add the potassium; stir together, strain, bottle. Dose, wine-glass full twice a day.

—L. E. Petron, Highgate, Vt., thinks it unwise to abandon the cultivation of corn and depend on the West. He says, in a letter to the New York Farmer's Club, that transportation costs so much that we never get it retailed there short of $1 in silver, while on good corn land it can be raised for from 50 to 75 cents, beside fitting the land for a good crop of wheat, to be followed by grass. On light, warm soils I spread the manure, and plow or drag in. On heavier and colder soils put some in the hills, to give an early start in the spring.

—Mr. B. F. Cutter, of Pelham, N. H., tells a story in the *Mirror and Farmer* of a hog, which, though well fed and apparently healthy, "did not grow one atom." Soon after feeding him one day, the owner happened to look into his pen, and found the trough completely filled with rats, which at once accounted for the lean condition of his starving hog. The moral of the story is put in the interrogative form,—Is it more profitable to raise weeds in the corn and potato field, or in the garden, than to fatten rats in the pig's trough?

—Amos Steller, Cary, Ohio, advises the New York Farmers' Club not to allow their sweet apple pomace to go to waste after the sweet cider is expressed, but put them in some water-tight box; let them remain until they are well heated; then return them to the press, and add, say, to the production of thirty bushels of apples, six or eight gallons of water, and you can press from one and a half to two barrels of vinegar from the same, and a good article at that. Vinegar made in this way will sour much sooner than otherwise.

—Agricultural writers occasionally recommend the cultivation of sun-flowers for seed. It is said to yield a gallon of oil to a bushel. A Mr. Spear recently remarked at a discussion of the subject by the New York Farmers' Club, that "When I was farming in the West we all had the sun-flower fever, and huge quantities were raised; but there were two difficulties, one was to get the seeds from the hulls, and the other to find any market for the seed after we got it out. We fed it to our poultry, and in this way found it very useful, for they decidedly preferred it to corn."

—Industry is commendable, but there is danger, especially on the farm, of working too hard. The case of an Iowa farmer was mentioned at a late meeting of the New York Farmers' Club, who toiled and grubbed and broke down his constitution, and made himself decrepit, to secure a farm for each of his boys, adjacent to his own, hoping they would be all about him in his old age—children and grand-children—to cheer and comfort him. He succeeded in securing the farms. But what then? Why the boys live 2000 miles away, and the bent up old man has strangers for neighbors.

—At a late meeting of the New York Farmers' Club, Mr. Quinn gave the following directions for managing currant cuttings. Currant wood can be turned into a plant the year it is grown by setting any time from August to November. I would make a square, clean cut, have the ground mellow that the young rootlets may meet with no obstructions, and then push the dirt closely around the bottom of the cutting. The fall is decidedly the best time to commence operations, because in so doing one gets a two years' growth in one. If it is very dry some mulching will be required, but generally, at this season, the ground is warmer than the atmosphere, and 98 per cent. should live.

—A correspondent of the *Country Gentleman* at Rock Island County, Ill., who has taken pains to look about the harvest fields of that section, and to inquire carefully of others, says that eight, ten, and all along to eighteen bushels per acre, is the yield there. Two fields, of 160 acres each, yield less than ten bushels per acre. He puts the average at about twelve bushels. Where the 200,000,000 bushels of wheat for this year's crop, that all the papers tell of, are to come from, he don't see. But he does complain that, before harvest, editorial correspondents and travellers, who perhaps didn't know in passing a field of grain whether it was oats, wheat, rye or barley, reported that *such big crops never grew before*. With much joy, we were about to return to seventy-five cent wheat, fifteen cent corn, and two cent beef and pork. The

consumers were to live cheaply, and get fat off the farmer. These big statements were all read from the daily papers by the sturdy and quiet farmer, while we looked on in vain to *see it*.

Mr. Samuel B. Hamblin, of Acushnet, Mass., raised this season, from one acre and ninety-four rods, fifty *bushels* of as handsome wheat as can be shown in the State.

—A late number of the Stockton, Cal., *Independent*, illustrates the extent of the grain trade at Stockton, by saying that two firms alone paid out last Saturday, eleven thousand dollars for wheat. And as evidence of the agricultural prosperity of the San Joaquin valley, the same paper adds that the greater number of mortgages resting on farms in 1866, have been cancelled.

—M. Geyelin, manager of the French "National Poultry Company," says that turkey cocks are employed largely to hatch and rear chickens, as they can incubate a much larger number of eggs than hens. The way in which they are induced to take to the hen's eggs is as follows: "A glass or two of strong wine is poured down a turkey's throat, and whilst in a state of inebriation the feathers are plucked off his breast, and he is placed on a large sitting of eggs. On coming to his senses next morning, he feels that a sudden change has come over him, and as the denuded and irritated part of his body is kept warm and soothed by crouching down on the smooth eggs, he wisely accepts his new position, and discharges the duties of a mother to the family thus foisted upon him with tenderness and vigilance." also p466-

STRAW AND ROOT CUTTERS.

Reader, have you supplied yourself with one of these implements? If not, do so without delay. There is annually much refuse matter accumulated about the barns and stables which a good straw cutter will enable you to work up to advantage, and with the assistance of a root cutter—provided you have a supply of roots of any kind—to convert much fodder of an indifferent quality into a means of sustenance for your stock. We think it would be economy to *borrow* the money to purchase one, rather than be without it, though we trust that would not be necessary with our readers.

If you once make careful trial of cutting the fodder for a stock of cattle, horses included, you will realize how much corn fodder, straw and hay of an indifferent quality you will be able to work up, and at the same time become convinced that your stock has grown faster, or made more fat and flesh, than under the old practice of feeding out entirely long hay.

If no grain, whatever, is fed to cattle, the cutting may not be so important; we do not know, never having tried it. Where a portion of the feed is grain—which is commonly the case in all places where hay finds a ready market—cutting the hay will prove of essential advantage.

We fed six or seven cows and five horses last winter on corn fodder, English hay, meadow hay and barley straw. It was all cut and thoroughly mixed, and sprinkled with cold water and a little salt as the mixing proceeded, then thrown into a heap. At the end of two days, one end of the heap was broken down and meal mixed with it. That for the horses being equal to about three quarts of corn meal per day; and that for the cows, equal to one quart of corn meal per day. All the stock did well, and it seemed to us at a considerable less cost than in the old way of feeding. The experiment was not an exact one, but confirmed several others of a similar nature, made some years before.

The season for feeding stock in the barn is at hand, and we know of no one item of economy with the farmer more important than the use of the hay cutter.

If roots are used instead of grain, they flavor the mass of dry fodder, so that cattle eat the whole eagerly. We knew one farmer to feed 30 or 40 cows through an entire winter on *wheat* straw, cut, and flat turnips, also cut. The cows were in sufficient flesh, and were producing a fair average of milk.

Improvement of Horses.—At the late fair of the Vermont State Agricultural Society, an association was formed for the improvement of horses, which, though independent in its organization, is to act as auxilary to the State Society. Officers were elected as follows:—

President.—Hon. T. W. Park of Bennington.
Vice Presidents.—Frederick Billings of Woodstock; Richard Bradley of Brattleboro'; A. W. Griswold of Morrisville; H. G. Root of Bennington.
Secretary.—Geo. A. Merrill of Rutland.
Treasurer.—Henry C. Horton of Vergennes.
Directors.—L. S. Drew of Burlington; E. S. Stowell of Cornwall; Geo. W. Hendee of Morrisville; Frank Goodhue of Brattleboro; N. T. Sheafe of Derby Line; Thomas Sanders of Brookfield; George C. Hall of Brattleboro'; L. T. Tucker of Royalton; Charles Clarke of Rutland; H. B. Kent of Dorset; Frederick E. Smith of Montpelier; C. Brainard, Jr., of St. Albans; E. A. Park of St. Johnsbury.

LIME, AND THE SOIL THAT NEEDS IT.

Doctor Jackson, in his Geological Report of Rhode Island, recommends the use of lime in combination with vegetable and animal organisms, in the compost heap. He places full reliance, it seems, upon its power to neutralize the noxious acids, which are more or less abundant in the humus of soils, after the compost has been incorporated with the earth. Ruffin, in his able essay on calcareous manures, recommends the use of lime on all soils not naturally calcareous.

Lime is one of the most common substances with which we meet in the crust of the earth, frequently constituting whole mountain chains, and in combination or mechanical association with other earths and metallic oxides, constituting a number of valuable minerals. In the bodies of animals it is detected as an important ingredient, particularly of bones and shells. It also enters as an indispensable constituent into vegetables, and is found in variable quantities in the ash, or residuum, which they leave upon burning, as well as in solution in almost all natural waters.

Formerly, lime was regarded as an elementary substance; but the results of modern experiments have demonstrated it to be a compound body, its principal ingredients being a metal, by chemists called "calcium," and oxygen, or vital air.

Phosphorus—a very important principle in vegetable nutrition, may be made to combine with lime by fusing the two together. The substance resulting from this amalgamation, is of a brownish color, called in chemical technology phosphate of calcium, and which is found to possess, in a remarkable degree, the power of decomposing water. "The phosphate of calcium," says an excellent writer on agricultural matters, "decomposes the water, the hydrogen of which combines with the phosphorus, forming phosphuretted hydrogen; while its oxygen combines partly with the calcium, forming lime, and partly with the phosphorus, forming phosphoric, and hypo-phosphoric acids. These acids unite with the lime, and form phosphate and hypo-phosphate of lime."

In most light soils of a sandy texture, there is generally found but little *humus;* the vegetable power is merely nominal in a natural and unfertilized condition, and the necessity of manuring them imperative, in order to secure even an ordinary crop. By turning in green crops, such as peas, clover and buckwheat, and applying lime in liberal quantities, we shall speedily reclaim and render them productive.

On poor low lands, of a clayey nature, lime is also found to exert a beneficial action. Such soils are not unfrequently possessed of clay, iron ore, or marshy ferruginous earth, which is composed, in a great measure, of clay and a liberal proportion of carbonate and phosphate of iron. These ingredients constitute a hard and compact body, the nature of which, and more especially the phosphate of iron, renders it extremely prejudicial to vegetation, whether reposing in subterranean, elongated strata, or in a state of solution, and occupying a position so superficial as to place it within range of the roots of plants.

Foul lime is also a valuable article for ameliorating soils and stimulating crops. It is made by the gas makers, and is the lime used for purifying the product of gas works. In this process the gas is made to pass through it—none but the best quality of lime being available for this purpose—and imparts to it ammonia, carbonic acid, and carburetted hydrogen, all of which principles are of service in promoting the development of vegetation in every stage of its existence.

Limestone often contains oxide of iron, silica and alumina. In one specimen of limestone which was subjected to analysis, there were found, in 100 parts:—

Chalk	53.00 parts.
Carbonic Acid	42.50 "
Silica	1.12 "
Alumina	1.00 "
Iron	0.75 "
Water	1.63 "
Total	100.00

In some limestone, the relative proportions of the three ingredients—silica, alumina and oxide of iron—are greater than they were ascertained to be in the specimen the analysis of which is here presented. Chalk is a concrete of lime. It is common in England, Denmark and France, as well as in other countries; but the Spanish chalk is not identical with this substance, being a sort of steatite, and is classed as a distinct substance. There is, also, a black chalk.

The lime most used by the English agriculturists in their farming operations, is procured

by "burning" the common chalk or lime stone. It is rarely chemically pure, containing, almost invariably, a quantity of sand or clay, or both, with the red oxide of iron. These, however, exist in too limited quantities materially to influence its fertilizing powers, as may be seen by the following analysis:—

Carbonate of lime	95.05	parts.
Water	1.65	"
Silica	1.12	"
Alumina	1.00	"
Oxide of iron	0.75	"

One hundred parts of common chalk contain:—

Lime	56.5	parts.
Carbonic acid	43.0	"
Water	0.5	"

Some clay loams, that have been highly manured and cultivated for several years, become inert, like an overfed man or animal, and refuse to yield fair crops. A heavy dressing of lime, or sometimes *sand*, will stimulate them into a remarkable activity, which will continue two or three years without the application of much manure.

QUAILS AND GROUSE.

In dressing some *Quails* and *Prairie Chickens* once, which were sent us by a friend from the prairies of Illinois, we had the curiosity to open the crops of some of them to see what was there. In the crops of the *grouse* we found plenty of evidence that they had visited the corn-fields of the farmers, as they were partially filled with the yellow flat corn which is so extensively cultivated in that State.

In the crop of the quails we found a variety of food, and among it *acorns*. Some of them were *perfect* and of a size altogether inconvenient to be swallowed whole, by such a bird, we should think, and others in various stages of the digestive process.

The husk or outside of a thoroughly-ripened acorn seems like sand, and may be composed much like the surface of a straw of the wheat plant. It is hard enough to destroy the fine edge of a knife upon cutting it, and yet, the entire surface of some of the acorns as large as the end of one's little finger, was eaten away, as though it had been triturated in some vessel with gravel stones. In others, the shell was entirely gone, while others were reduced in various degrees.

What a finely-adjusted and powerful *mill* it must be to convert such flint-like substances into a soft and slippery pulp.

While looking at a large Ostrich in a menagerie, once, a small boy stood by with a pair of woolen mittens in his hand. The African eyed them curiously for a moment, made a thrust, and the boy was minus one mitten! We could see it going the circuit down his long neck to the crop!

But of all the gormandizing that we ever knew or heard of, was that of a sea gull, which we took from Cape Ann and sent into the country. Half a mile from the house where he was kept, there was a large pond, and once each day he would take wings, go there and make the water fly at a great rate. After having got through with his ablutions he would return at once to the house. His appetite was enormous. After having eaten four or five good sized perch one day, and a large piece of soap which the men had just been using before going to dinner, one of the boys who stood by, said, "darn him, I believe he would swallow my jack-knife." "Throw it to him," said another. So the knife was thrown, and caught by the gull before it touched the ground, and went down into the abyss with the perch and the soap! But the boy had lost his knife, and was in trouble, so one of the men caught up the gull, and gently manipulating the crop and throat, soon brought out the jack-knife as good as ever.

The reader is referred to an interesting article on another page, on *How Fowls Grind their Food.*

For the New England Farmer.

CHEMICAL TERMS---No. IV.

Ammonia, is a transparent, colorless gas, possessing an acrid taste and an exceedingly pungent smell. It is composed of one volume of nitrogen and three volumes of hydrogen, chemically combined. From these three volumes of hydrogen and one of nitrogen, not four volumes of ammoniacal gas are formed, but only two; that is, the ammonia occupies but half the space of the gases from which it is formed. It is easily obtained by the action of lime on muriate of ammonia, or sal ammoniac. It is produced when animal substances are heated with exclusion of air. These substances always contain nitrogen and hydrogen, which at the moment of being set free by heat, combine with each other, forming ammonia. It is also evolved in the form of carbonate of ammonia from all vegetable and animal substances containing nitrogen, during the pro-

cess of putrefaction,—hence its presence in decomposing manures. As it is highly volatile and tends to fly off as it is formed, some substance should be frequently added for which it has an affinity, as sulphuric acid diluted with water, sulphate of lime, peat, muck or loam, with which it will combine, and be retained in the decaying mass.

Carbon.—This abounds in the animal, vegetable and mineral kingdoms. It enters into the composition of the bones and soft tissues of animals. It constitutes the largest part of the bulk of vegetables. If these are burned with the partial exclusion of air, so that there shall not be oxygen enough present to enable them to burn rapidly, the volatile portions will be driven off by the heat, and the charcoal or carbon will remain.

Charcoal when freed from earthy matter is nearly pure carbon. Mineral coal is composed largely of carbon—the remains of former vegetation. The diamond is pure carbon, and may be burned without leaving any ash behind. Carbon is found in the form of carbonic acid, combined with lime, in marble, coral, shells, &c., and abundantly in nature. Plumbago, or as it is called, black lead, is crystalized black carbon. Carbon shows clearly how one and the same body may have different forms and different properties. In charcoal soot, coke and animal charcoal, it is black, and very combustible. In plumbago it is black, with a crystalized structure, and nearly incombustible, so that crucibles are made of it, which bear the strongest fire without burning. In the diamond it is colorless, and crystalized in the form of a double pryamid, and is almost incombustible.

Coal is not decomposed at common temperatures, that is, it does not enter into chemical union with the oxygen of the air and water. But when it is heated to redness this readily takes place. It then burns and disappears, with the exception of a small quantity of ashes. The heat developed by the burning is the result of the chemical union of the carbon with the oxygen of the air. The gas generated is called carbonic acid, and consists of one part or atom of carbon and two atoms of oxygen. Carbonic acid is always formed when burning charcoal has a sufficient supply of air; but when there is a deficiency of air, carbonic oxide gas is formed, which consists of one atom of carbon, and one of oxygen. This gas is what miners call coal gas, or choke-damp. This is very destructive to life when inhaled. What is called the fume of charcoal, is the result of the slow combustion of charcoal, as when it is smothered with ashes which obstruct the access of air, or when the damper of a stove is closed before the coal is burned out, which prevents the draught of air and consequent supply of oxygen.

Carbonic acid is formed wherever substances are burning, with free access of air; wherever men and animals are breathing; and wherever decay and putrefaction are going on; and thrown into the atmospheric ocean by which the earth and all its products are constantly bathed. From the atmosphere it is absorbed by all growing vegetables, and thus its injurious accumulation is prevented, which occurs only in exceptional instances, and a due equilibrium is preserved. From its existing largely in nature in carbonate of lime and other alkalies, it was called by Dr. Black, fixed air. Many springs are impregnated with this gas, which gives their waters a sparkling appearance and a fresh and pleasant taste. Immense quantities of water are artificially prepared under the name of soda wa er by impregnating them with carbonic acid gas. It is about one-third heavier than atmospheric air, and may be poured from one vessel to another like water. If air contains more than fifteen per cent. in bulk of this gas, it will not support animal life or combustion. Lighted candles will be extinguished in it. R.

Concord, Mass., Sept. 28, 1867.

For the New England Farmer.

CHEMISTRY.

If I rightly remember, common salt was formerly called by chemists, *muriate of soda*; and was believed to be such a chemical combination as the name indicated. Subsequent experiments, such as the combustion of the metal sodium in chlorine gas, seemed to prove that it had been wrongly named, and thenceforth it was called, technically, *chloride of sodium*, a name clearly indicating its true combination. Not being well versed in recent chemistry, I was not aware that the name had been again changed, until I saw "Chemical Terms," No. 2, in the FARMER of 21st of Sept. inst.; where it is called, "chloride of *soda*;"—thus making it a hitherto unknown and anomalous combination of chlorine and the protoxide of sodium; —or else the writer or printer has so confounded "chemical terms," as to put *soda*, the protoxide of a metal for *sodium*, the metal pure and simple. In either case it (common salt) is not well chosen as an example of the combination of an acid with a base; for if we may rely on modern chemistry, only three years old, common salt,—unlike sulphate of soda, Glauber's salts,—is a *haloid* or binary salt, and a chemical combination of the elementary gas, chlorine, and the metal sodium, and is therefore called, technically, chloride of sodium. In the common language of chemistry, chlorine is not an acid, neither is sodium such a base as comes under the definition, "an alkali or oxide of a metal." But a *base*, as a general chemical term is. "the principal element of a compound, usually electro-positive in quality." *Webster.*

Filtration.—[The straining of a liquid through unsized paper, felt, fulled cloth, or other permeable substance, so as to separate therefrom precipitates and other impurities, is called a filtration; therefore, filtration is the

straining of a liquid through unsized paper,] This would be called by logicians an unwarranted *conversion of a proposition*; and when applied to another subject, would be about as follows:—[The term *goose*, and the names of animals in general, are, in grammar, common nouns; therefore, a common noun is a goose.]

We do not find that the term, *filter*, has any exclusive chemical signification; but if it is entitled to any special definition, it should be that of "a piece of felt or fulled woolen cloth," as its etymology implies.

It is quite proper to inform ignorant farmers that chemists think that unsized paper makes a superior filter, and that they generally use such an article for filtration; but the fact should not be concealed from such of our brother farmers as may not have a chemical text-book, or even a common dictionary at hand, that *filtration*, as a chemical term, is, by an eminent chemist and author defined as—"The process of separating precipitates, by straining, or passing the fluid through *any* porous substance." I. B. HARTWELL.

Wilkinsonville, Mass., Sept. 23, 1867.

HOW FOWLS AND BIRDS GRIND THEIR FOOD.

Fowls have no teeth to grind or masticate their food with, and the best they are able to do with it at first, is to pick it to pieces and swallow it whole. Kernels of grain are swallowed *whole* by them, and as they are surrounded with a tough pellicle or skin, which the juices of the stomachs of animals will not readily dissolve or digest, they could obtain no nourishment at all from grain, if this tough pellicle were not broken.

Let horses, cattle or people swallow kernels of grain, or ripe seeds of fruit, *whole*, and they will pass off in the ordure unbroken, and most of them will not lose their vitality, in consequence of such a process, and such grain would afford no more *nourishment* than so many smooth gravel stones.

Now, if we dissect the gizzard of a fowl of any kind, we find a lot of small gravel stones, which are usually the hardest kind of flint, granite or sand stone. Surely here is a pocket edition of Farm Grist Mills. The *mystery* is, where do fowls find such little flint-like stones, when their abode is on farms, the soil of which is a complete mold or muck, destitute of gravel, or when they are confined in close quarters for month after month, during winter, for example, or in a grass yard in warm weather, these little gravel stones are *very important articles* with fowls—quite as important as the teeth of ruminating animals.

Fowls swallow their food, broken or not, and it enters the crop or first stomach, and remains in it until it has become softened, more or less, when a small quantity at a time, just as grain runs into a grist mill, is forced into the gizzard, among the gravel stones. This gizzard is a strong, muscular stomach, and plays night and day, when there is a grist to grind, similar to a bellows, contracting and expanding, thus forcing the gravel stones into the grain, and breaking it to fragments, and triturating the whole mass; after which it is in a suitable condition to be quickly digested. Of course, these little stones will become *very dull*, after having been in operation for a month or two, and the gizzard, like an economical miller, throws them out of doors, and demands a better set; and if they are not furnished of course the grist is not half ground, and of course more than twice as much food is necessary to sustain life, and form eggs, as would be required were it well ground; and of course the eggs of fowls would cost double in this case that they would in another with the same food. This suggests the importance of supplying fowls and birds in cages with plenty of sharp gravel stones, and of having their food bruised or ground fine before they eat it; and it suggests

The Importance of allowing Fowls to Feed Themselves.

When fowls have access to grain all the time, we see them eat in the morning only a few kernels at a time, and after an hour or so, they will take a few kernels more, and thus they pass the entire day by eating a little at a time, and very often.

The philosophy of their eating so frequently and but a little at a time, is, the food has a sufficient time to become softened in the crop before it passes into the gizzard, and it has sufficient time to be thoroughly ground and digested; whereas, when fowls are not allowed to have access to their food, but are fed once or twice a day, they become very hungry, and swallow as much as their crops will hold at one feeding. Now for several hours, no food will be softened sufficiently to pass into the gizzard, consequently their grist mill must stand idle. Now the moistened grain swells and distends the crop of the fowl, and it feels by no means comfortable. Shortly all the food in the crop is in the proper condition to be ground, and the result is, that it is forced through the gizzard with so much rapidity that it is not half ground, and, therefore, cannot be half digested; and if it is not half digested, of course not half the nutriment, or egg-producing material, can be extracted from it. Nor is this the greatest drawback attending feeding fowls only once or twice a day. When a fowl fills its crop at one feeding, before the food can possibly get out of it, it begins to heat up, and derangement and ill-digestion follow, very much as is the case when we fill our stomachs as full as they can be crammed.

The way to feed fowls, and particularly those that are laying, or being fattened, is to allow them to have free access to food at all times. In this way they can always supply the demands of their stomachs and grinding

apparatus, exactly as food is needed; and they will fatten more rapidly, or lay more eggs, and consume much less food than they will if they are fed as much as they will eat twice a day.

My practice now is, and always has been, to allow my fowls to have free access to corn in the ear all the time, both summer and winter. Of course they are obliged to shell it for themselves. Occasionally we feed them screenings, and when we have no screenings we take a peck or so of wheat, and as much buckwheat, oats, barley or rye, and mingle them all together, and mix the grain with some chaff, so that they will not be as liable to consume as much of it at once as if it were clear grain. When we have an abundance of milk, we place a vessel containing it where they can find it at any time. In warm weather, after it has become loppered, they will consume, during the day, much more of it than one would suppose; and milk is as good to fatten poultry and make chickens grow, as it is for pigs; and it is one of the very best kinds of food for any kind of poultry, when they are laying.—*S. Edwards Todd, in Country Gentleman.*

WORKING OXEN BY THE HEAD.

Some time since we published a statement of a teamster who said that oxen yoked by the head would do more work and do it easier than those yoked in our ordinary way. We find a very different opinion expressed in a communication to the *Western Ruralist*. The writer says:—

I have had a good deal of practice in working oxen. In 1853 I was lumbering on the Pacific coast, 150 miles from the entrance to the harbor of San Francisco. We had eighty yoke of Spanish and American cattle, drawing logs to the mill and lumber to the landing. We had several men who claimed that the Spanish way of yoking was the best. To test the matter, I had a yoke, Spanish fashion, hitched to a log, which, after repeated trials, they could not draw. I then had them unyoked and yoked Yankee fashion. At the first pull the chain gave way, but at the second trial they drew the log several rods. I put them on the road, where the fact was demonstrated that one pair, with the yoke and bows, was equal to two yoke with the timber strapped to their heads.

In no case would the people use the stick, after we had broken their cattle to our yoke. Ask one of them the reason, and the reply would be that the stick was no good. I broke sixteen yoke in the winter of 1853, and could have had thrice as many, if I could have attended to them.

This plan of working cattle with the stick fastened to the head is a cruel way. They cannot take advantage of a heavy load; they cannot turn their heads in either way; they cannot fight their cruel tormentors, the flies, and there are many other disadvantages. I am satisfied the yoke and bows are far superior to the Spanish way, and how any sane man can recommend such an outlandish mode of working oxen is more than I can comprehend. E. R. M.

PHILOSOPHY OF HAY-MAKING.—The following inquiries and suggestions by the agricultural editor of the New York *Tribune*, afford suitable topics for the discussion of farmers' clubs, and for the investigation of the chemists of our agricultural colleges:—

We want to know something of the changes produced in the nutritive properties of grass by the vicissitudes incident to hay-making. Grass partially dried and then moistened with dew, parts with its coloring matter—becomes bleached. Do any of the nutritive qualities also evaporate with the dew? If so, what changes have the gum, sugar, starch, &c., undergone, that make them more volatile than before the grass was dried? What change in the nutritive qualities of grass does heat produce that is generated in the mow or cock, by moisture? If, as in the case of the cock, a little heat is supposed to do no harm—why may not hay which in a stress of weather is put into the barn a little too damp, have the decomposition arrested by salt or lime, or the injurious gases absorbed by charcoal?

—At a convention held in Iowa City, Aug. 9th, the Concord grape was almost unanimously endorsed for general cultivation.

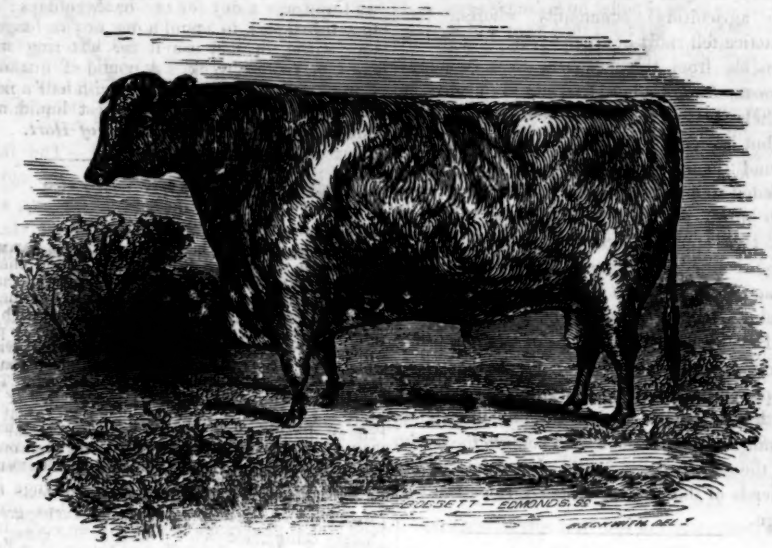
THE FARMER FEEDETH ALL.

BY CHARLES GODFREY LELAND.

My lord rides through his palace gate,
My lady sweeps along in state,
The sage thinks long on many a thing,
And the maiden muses on marrying;
The minstrel harpeth merrily,
The sailor plows the foaming sea,
The huntsman kills the good red deer;
And the soldier wars withouten fear,
But fall to each whate'er befall,
The farmer, he must feed them all.

Smith hammereth cherry red the sword,
Priest preacheth pure the Holy Word,
Dame Alice worketh broidery well,
Clerk Richard tales of love can tell,
The tap-wife sells her foaming beer,
Dan Fisher fisheth in the mere,
And courtiers ruffle, strut and shine,
While pages bring the Gascon wine;
But fall to each whate'er befall,
The farmer, he must feed them all.

Man builds his castle fair and high,
Wherever river runneth by,
Great cities rise in every land,
Great churches show the builder's hand,
Great arches, monuments and towers,
Fair palaces and pleasing bowers;
Great work is done, be 't here or there,
And well man worketh everywhere;
But work or rest, whate'er befall,
The farmer, he must feed them all.



DURHAM OR SHORT HORNED BULL.

So far as the production of beef is concerned, there is no breed equal to the Durham. The large feeders in Kentucky, Illinois and other Western States are very partial to the pure and grade Shorthorns, and the best lots of Western steers at the Brighton market are strongly marked by the English *Teeswater*, as the breed was at first called. Some families of the Durhams are very good milkers, though at present, here in Massachusetts, the Jerseys seem to be enjoying a large share of the public favor, and occupying a good proportion of the exhibition pens of our fairs.

Our engraving represents a Short Horned bull "Earl Seaham" which received a prize a few years ago at the New York State Agricultural Fair, and is a well-proportioned, fine-looking animal.

THE STATE AG'L COLLEGE.

We are informed by a prominent citizen of Amherst, that the prospects of this new institution are very favorable. He expressed an opinion that it would, under the management of an energetic and able President, such as he considered its present head, prove a decided success. It opened for students on Tuesday, October 1, according to previous announcement. The first freshman class is composed as follows:—

M. F. Casey, Wm. Barrows, Jr., George G. Graves, A. Basset, F. A. Hall, G. H. Eastman, W. H. Carey, George H. Bell, Amherst; W. B. Greene, Homer L. Cowles, Hadley; J. F. Fisher, L. B. Caswell, Fitchburg; Wm. P. Birnie, Springfield; C. A. Ellsworth, Barre; C. E. Brown, Northampton; A. A. Rankin, Pelham; G. A. Allen, Marion; A. Southwick, Belchertown; F. L. Whitney, Boston; W. G. Pratt, North Bridgewater; G. C. Woolson, Hopkinton; Wm. Wheeler, Concord; L. A. Sparrow, Medway; George Leonard, New Bedford; W. H. Banks, Phillipston; S. A Nichols, Danvers; G. P. Strickland, Amesbury; J. H. Herrick, Lawrence; W. H. Russell, Sunderland.

We understand that Hon. M. P. Wilder, of Dorchester, and Dr. Nathan Durfee, of Fall River have made valuable donations to the botanical garden attached to the College.

We shall watch the progress of this experiment in education with great interest. We believe it may be made productive of great benefit to the State,—if not in the manner which its originators anticipated, then in some equally beneficial form. We have heard the suggestion—and were favorably impressed by it—that, at the least, the graduates would be fitted for and admirably adapted to the conducting of agricultural newspapers, having the requisite scientific knowledge to detect the fallacies of mere theoretical writers, and the

ability to clearly and forcibly demonstrate to the agricultural community wherein their practice fell short of securing the best results possible from the means at their command. *Practical* knowledge of farming is always infinitely better than *theoretical* management, —but it seems to us that the combination of sound theory with skilled practice is alone needed to make agriculture, in every sense of the word, one of the professions, or arts, if the term apply better. Such theory the College course is designed to supply, and such practice the students should make a part of their Collegiate course.

But we have our College in working order, the first class creditable for unmbers, and we hope enthusiastic in their studies,—and now, with the heartiest wishes for its success, we await the report which shall confirm the doubts of the skeptical, or justify the claims of the friends of the Massachusetts Agricultural College.

FENCES.

The materials and labor required to build and keep fences in repair are among the heavy items of farm expense. The cost of the land on which they stand is another item on which J. Harris of Rochester, discourses as follows in the *American Agriculturist*:—

How much land does an old-fashioned fence occupy? I have always thought it took up a good deal of land, but never had the curiosity to measure. But this summer we have been building a stone wall along the whole west side of the farm, and after it was completed, and the old fence removed, I was surprised at the quantity of land we had gained. The ground, of course, might have been ploughed closer to the fence, but taking the case as it actually was, the old rail fence, with stones, weeds, rubbish, &c., occupied a strip of land one rod wide. A field, 31 rods long and 31 rods wide, contains about six acres. If surrounded by such a fence, it would occupy a little over three quarters of an acre of land. A farm of 160 acres so fenced would have twenty acres of land taken up in this worse than useless manner. Not only is the use of the land lost, but it is, in the majority of cases, a nursery of weeds, and, in ploughing, much time is lost in turning, and the headlands and corners are seldom properly cultivated.

LIQUID MANURE.—The best liquid manure that we have tried for all plants in pots, is that formed by pouring thirty gallons of rain-water over one peck of sheep's dung fresh from the pens, and one peck of soot. Stir the whole well up twice a day for two or three days; allow the liquid to stand a day or two longer; then stir again, and use it for watering with once or twice a week. A pound of guano in twenty gallons of water, along with half a peck of soot, will form one of the best liquid manures known.—*American Jour. of Hort.*

EXTRACTS AND REPLIES.

WILTED CHERRY LEAVES.

It was stated in a late number of the FARMER that cattle were poisoned by eating wilted cherry leaves. In my opinion they were not poisoned, but choked. I saw two cows that had eaten cherry leaves. On opening one that died, a bunch of leaves was found stuck in her throat, so as to prevent her swallowing, and thus caused her death. The other was in great agony and would probably have died if she had not been relieved soon. This was done by forcing about half a pound of the soft end of a strip of salt pork down her throat till she swallowed, when down went the pork and the leaves too. Then she was ready to eat some more.

Braintree, Mass., Oct. 1, 1857. E. FRENCH.

REMARKS.—In connection with the facts that we have seen stated in some of our exchanges, of horses being made sick by eating *wilted* grass, the foregoing statement of Mr. F. may be a valuable and suggestive contribution to the general fund of knowledge upon this subject. In the multitude of counsellors there is wisdom. But can all the symptoms exhibited by animals that have died, or by those that have been injuriously affected by eating cherry leaves, be accounted for on Mr. French's theory?

In the account of the sickness and death of the ox in Gilsum, N. H., published in the FARMER of September 7th, it was stated that the symptoms of illness were first noticed in his eyes, which discharged a watery substance, as they do when they have been hurt. The next day they turned a bluish white, and the ox was entirely blind, and appeared to be in great pain, and did not eat. His mouth began to swell and corrupt, with an offensive smell. He grew worse for seven days, and then died.

Of a calf that died in Bolton, Mass., from eating leaves that were broken from a cherry tree, under which he was tethered, it was stated in an account published in the MONTHLY FARMER for 1855, page 386, that the first symptoms were excessive costiveness; the animal straining and showing frequent uneasiness. It then gradually lost its appetite, and exhibited symptoms of blindness. Continuing to grow worse, the poor creature began to tremble violently, moving round and round as if tipsy and crazy, moaning piteously, knocking its head meanwhile against anything that come in its way, until it finally dropped down and expired.

In the case of some cows in Plymouth county, Mass., the symptoms of the disease were first manifested in the cream from their milk, which would not make butter as readily as usual. To

ascertain the cause, the cows were watched while in pasture and seen to reach over a wall and browse some cherry trees within their reach. After changing them to another pasture the milk resumed its its former healthy condition.

Would all these symptoms have been manifested from mere choking?

It is, we believe, no uncommon thing to find a portion of the contents of the stomach in the throat of slaughtered animals; being forced there, probably, by their death struggle. Might not such have been the case with the bunch of leaves that Mr. French found in the throat of the cow that he examined? As oil, grease and fat are antidotes for poison, is it not possible that, in the other case alluded to by Mr. F., the strip of soft pork, acting as a medicine, counteracted the poison, and cured the cow that he says was so soon ready to eat more of the cherry leaves if she could get at them?

PREPARE FOR SPRING WHEAT.

Now is the time to prepare and plow your ground for spring wheat—and thus save time when pressed in the spring. Manure well, and plow it in deep. Wheat roots strike deep for nourishment and the gases of manure come up by evaporation. Harrowing in wheat is a fatal error. It dries and evaporates too quick, leaving the roots to seek what they cannot find. It should be ploughed. The warm uplands are preferable for this grain.

It is gratifying to read in your paper of samples of wheat for premiums at your agricultural shows. It reminds me of my efforts and pleadings twenty years ago, with my samples of wheat on exhibition, which seemed like so much dead wood upon the leaden sensibilities of the farmers. *Then as now*, I predicted a revolution in this branch of agriculture. Sooner or later the whole mass of New England farmers, excepting Rhode Island, will raise their own bread. Four acres to every farmer, say 20 bushels to the acre, would nearly supply every State with flour and save over thirty millions of dollars per annum. These figures look large, but it is not an exaggerated statement, fixing the fair minimum of one barrel of flour to each individual per annum.

The papers state that the average crop of all the West combined this season, is but 12 bushels to the acre. Your farmers down east would not be satisfied with this. Wheat can be sown either in spring or fall, while oats, or corn, or barley, or beans must be put in in the spring, or not at all.

I planted wheat in my yard the first day of September last. It was brined and ashed. It made its appearance in four days, and in two weeks it was thirteen inches high. H. POOR.

Brooklyn, L. I., Oct., 1867.

KEYES' TOMATOES.

There is considerable discussion upon the merits and demerits of this variety of tomato, which was so extensively advertised, I may safely say, in all our of agricultural papers, representing it to be thirty days earlier, more productive, and of superior flavor, the foliage of which was without scent. With me it has failed in all these particulars, although I procured the seed from *head-quarters*, and gave it special attention. Planted at the same time and in the same row with the Tilden, Lester's Perfected, Cook's Favorite and my own Seedling, the first three tomatoes were picked from Cook's Favorite, next in order came my own Seedling, following came the Keyes and Tilden, and last Lester's Perfected. The first bushel was picked from my own Seedling, second from the Tilden, third from Cook's Favorite, fourth from Keyes' and Cook's Favorite. The scent of the foliage from Keys' tomato was much more offensive than from any of the other varieties; it was a shy bearer, in comparison with many other kinds; quality good, equal to that of the Tilton, or Lester's. I think it does not compare favorably with more common varieties. I.

Salem, Oct. 3, 1867.

WINTER AND SPRING WHEAT IN MASSACHUSETTS.

The accompanying specimens of wheat are from two crops raised on my farm the past season. As marked, one is winter and the other spring wheat. The winter wheat is known as the "Amber."

Winter Wheat.

The winter wheat was grown on 118 rods of land, surveyed after crop was harvested, which is set with apple trees, nine years from the nursery, thirty feet apart each way. In 1865 sixteen loads of barn manure were applied to the land, and thirty-five bushels of barley were raised upon it. The year before it was planted with corn, manured in the hill. The soil is a strong loam, and was ploughed six to ten inches deep three times before sowing, and 300 pounds of "Hayward's Compound" was used. The seed was sown the 20th of September, 1866, and the crop, 22½ bushels harvested about the same date, 1867. Weight of wheat 62 pounds per bushel.

Crop, in Account.

Dr.		Cr.	
Ploughing 3 times,	$6.00	22½ bu. wheat at $3.50,	$77.75
Harrowing,	.50	2158 lbs. straw,	16 00
One bu. seed,	4.00		
Sowing,	.50	Amount	93.75
Reaping and binding,	6.00	Cost of production,	33,00
Threshing (4 days),	6·00		
Winnowing,	1.00	Profit,	$60.75
300 lbs. "compound",	3.00		
Interest and taxes,	6.00		
Amount,	$33.00		

Spring Wheat.

The acre on which 23½ bushels of spring wheat were raised, was planted with corn last year; sixteen loads of manure from cellar and horse stable being used in the hill; producing 119 bushels of ears. The soil is a rather light loam, and was ploughed six to eight inches deep, three times in the spring. The thorough preparation of the land is in my opinion, one of the conditions of a good crop of wheat. The manure applied this year was 26 loads barn manure and 600 pounds of "Hayward's Compound." The wheat was sowed early in May, and harvested in July and August.

Crop, in Account.

Dr.		Cr.	
Ploughing 3 times,	$9.00	23 bu. wheat $3,	$70.50
Harrowing,	.75	2100 lbs. straw,	14.00
Seed, 2 bu.,	6.00		
Sowing,	.75		$84.50
Reaping 4 days,	6.00	Cost of production,	70.50
Binding,	1.00		
Threshing & winn'ing,	9.00	Profit,	$14.00
600 lbs. "compound,"	6.00		
Interest and taxes,	8.00		
Manure, ⅓ of value,	24.00		
Amount,	$70.50		

ELIJAH FITCH.

Hopkinton, Mass., Sept. 28, 1867.

REMARKS.—It gives us pleasure to present the above statement, not only as embodying facts of intrinsic value, but as a model for those who wish to communicate results of such practical value.

Both specimens of the grain sent are plump and good. We have now five specimens of Massachusetts, and one of Vermont wheat.

CHEMISTRY.

That I may not be tediously prolix, my present remarks will be confined to a single passage in "Chemical Terms, No. 3."

"When vitality has left organized bodies, their component elements are at once seized upon by oxygen, which unites with their nitrogen and converts it into atmospheric air," &c.

With one exception, the statements in the whole paragraph are undoubtedly true, in the sense intended by the writer; yet it is to be regretted that the capacity of farmers for receiving elementary instruction is assumed to be so weak and low as to require such inelegant and unscientific language. The objectionable statement, changing somewhat the phraseology, seems to be that in the decay and dissolution of organized and azotized bodies, "oxygen seizes upon" and "unites with their nitrogen and converts it into atmospheric air." Waiving, for the present, all objection to the uncouth and somewhat ludicrous expression, that oxygen seizes *upon* the various elements and converts them, (for there is no proof that oxygen is not as much the "*seized upon*" as the seizer), the statement in relation to nitrogen is so palpably erroneous and absurd, that we are unwilling to believe that the author of "Chemical Terms" has so far forgotten first rudiments as to put forth the statement in sober earnest. Perhaps after the manner of pedagogues, he adroitly combines an intentional error with numerous truths, to test the critical acumen of his pupils.

In the decay of azotized matters, some have maintained that oxygen combines with nitrogen and forms, not atmospheric air, but nitric acid; many admit that the nitrogen passes off into the atmosphere as a simple uncombined element, while the fact is too obvious to be denied, not only to chemists but to every careful observer of nature, that "ammonia, a combination of hydrogen and nitrogen, is a constant product of the decomposition of organic substances containing nitrogen."

The merest tyros in chemistry well understand that atmospheric air is, in no sense, a chemical union or combination of elements.

Why oxygen should be accused of leaving for awhile its most indifferent and peaceful association with the superabounding volume of nitrogen in the atmosphere, that it might "seize upon"—that for which it has no passion and only a feeble affinity—some humble quantity of nascent nitrogen, or some nitrogen in loving union with some other element, "converting it into atmospheric air," and subjecting it to the same indifferent treatment accorded to atmospheric nitrogen in general, is more than we can understand.

I. B. Hartwell.

Wilkinsonville, Mass., Sept. 30, 1867.

AN ARGUMENT FOR THISTLES, AND HOW TO DESTROY THEM.

I frequently see in your paper and others, objections to Canada thistles, with ways suggested to get rid of them. Now I am in favor of the thistle. I never had too many of them on my tillage land. They make good fodder for any kind of stock. When in hay they want as much drying as hay and no more. I have cut thistles in my pasture for fodder, and find that when clear they need but little drying, as when considerable mouldy any stock will eat them and do well on them, but if they are thoroughly dried they are too sharp for stock.

Where thistles of any kind grow freely, I know there is good land for grass, grain, or other crops. I do not want any better recommendation of any cultivated land than to know that thistles grow freely. But I do not want them in my pasture, as I think they are an injury there. Unless too severely stocked, cattle will not eat the feed where the thistle grows thick. I have mowed small patches in my pasture, and find that after they are wilted by a little rain or dew, the stock will eat them. But if the object is to drive them out of the pasture, the right time to mow them is said by many to be in the old of the moon in August. I have better success in mowing them later in the season, because the longer they stand up the larger the cavity in the stock becomes, and the surer you are of killing them. I think the rain that gets into the cavity of the stock rots and kills the thistle. With such mowings for two years you will not have many thistles in your pasture.

Orison Foster.

Tunbridge, Vt., Oct. 1, 1867.

HOW TO MAKE WINE FROM GRAPES.

Can you give the particular information of the process of manufacturing wine from grapes?

Kendall's Mills, Me., Oct. 1, 1867. D. B.

Remarks.—Those who preserve the Farmer will find directions for wine or cordial making in one of the numbers about a year ago. The following method is recommended by a correspondent of the *Country Gentleman*. It is for a barrel of "Grape Wine":—"Get a new oak forty gallon cask, five or six bushels of grapes, and 100 pounds of A. No. 1 hard sugar. Pick the grapes carefully from the stems, rejecting all unsound ones, put them into tubs and fill to cover with water. Let them stand 24 hours, then mash in some convenient way; leaving the pulp and liquor to stand again 48 hours, and then strain into other tubs. In the operation avoid contact with all metals, especially iron, because it gives a dirty color, and brass and copper because they are poisonous. After the first straining wash, and wash again the seeds and pulp with a little water each time, and all the desirable soluble matter of the grape will be obtained. Distribute the liquor into tubs and add the 100 pounds of sugar and water sufficient to make 45 gallons, in all. Put 40 gallons into the barrel, reserving the five gallons to fill the cask from day to day, as the spume works off at the bung. When the active fermentation has passed, say in the course of three or four weeks, bung up tightly. In from three to six months a palatable liquor will have been developed, and if I am rightly informed, the 100 pounds of sugar will have changed, first into grape sugar, and then into 50 pints of absolute alcohol."

BEES AND BEE-BREAD.

It appears that I did not convince your correspondent "F." that his bees did not perish for the lack of bee-bread; neither do I believe they died from that cause. If he lives in a region where bees can't collect enough bee-bread to keep up breeding through warm weather, my advice to him is, either remove to some place where the land is better, or else sell his bees. I don't understand why it is that some of his bees die for a lack

of bee-bread, and others do not. His bees must leave off breeding very early in the summer, to have them die of old age. Bees hatched in September can be found in the hive in April, and May, often. This any bee-keeper can vouch for, who has had an Italian queen introduced in the month of September.

Broods cannot be found in any hive which has not been fed, later than October 15, and in most hives after October 1st. I do not want my bees to commence breeding earlier than the first of March, and then, if we have a few warm days, I give them a substitute for bee-bread, which they will carry in enough of, in one hour, to last them two or three weeks. I mix wheat flour with rye meal, and they will carry in as much of it in one hour, as they will of rye meal in six.

If "F.," or any other bee-keeper, will put some rye meal in a warm place in the spring, and after the bees are well at work, put in some flour with the meal, he will soon see ten bees where there was only one before. I have used flour for a number of years, and I never knew or heard that any other bee-keeper in the country used it. If "F." will come to Wenham, I will show him fifty-one stocks of bees, which did not have in September, 1866, one pound of honey to a hive; and now those fifty-one stocks have increased to eighty-five, and have stored *one ton of surplus honey*.

The colonies which carry in rye meal first, and seem to work in it most, always prove to be the ones which swarm first, and store the most honey. We have lost bees in the same way in which "F." has; but we know that they starved with plenty of honey in the combs. There was no winter passage through the combs. Out of thirty Langstroth's hives, which one bee-keeper wintered bees in last winter, only one was lost; and in this one he failed to make the winter passages through the combs. H. ALLEY.

Wenham, Mass., 1867.

APPLE BLOSSOM—QUERY.

Why is it that the apple trees which flowered so abundantly last spring, have so little fruit on them? Because the vitality of the trees was so far exhausted in maturing so many flowers that they were unable to carry out fruit.—*Farmington, Me., Chronicle.*

Think so? Nature at fault! Did you ever know a good apple crop when there was a scarcity of flowers? Rather, there is a defect in the flowers themselves, or there is some unfavorable influence which acts upon the flowers to destroy their vitality, to be looked for, than a superabundance.

We cannot conceive that it much more seriously exhausts a tree to produce a crop of flowers than a crop of leaves. It is the fruit which calls for and must be supplied with material or food that exhausts.

There is sometimes a disparity in the relative proportion of the sexes, observable in the flowers of the apple tree, as well as in other fruit flowers, well known to horticulturists as a cause of sterility.

Climatic changes will be shown, probably before many years, from careful observations, now being made in this State and Massachusetts, to account for much of the disappointment which we occasionally experience when our orchards are seen to be in full bloom, and we confidently expect an apple crop.

Just how hot, or just how cold it has to be to destroy the blossoms is not, as yet, ascertained, as far as I am aware; but it is found that there is more danger from heat than from cold, at the season of flowerage.

An extreme hot afternoon with a clear sunshine, the glory and beauty of the day and of the season, and in one to three days look at your beautifully full blown apple trees and, behold, where are those delicately variegated flowers, in which, but as yesterday, the hum of a thousand voices might be heard? They are withered, scorched, dried up and falling off, by a kiss from old Sol, as he came forth in his glory, to bid the earth awake and bring forth her fruit in due season. O. W. TRUE.

Farmington, Me., Sept. 27, 1867.

CATTLE STANCHIONS.

In your last issue I notice a communication from "A. L. W.," Hope, Me., informing us that he uses a "kind of stanchion for cattle that are as easy as chains, while they are more safe, convenient, and much better every way;" but he neglected to tell us how they are constructed.

As I feel much interest for the comfort of all dumb beasts, and especially in keeping cows neat and clean, as well as safe and comfortable, I would be obliged to him if he would inform us through the columns of the FARMER, how to construct the stanchion he uses.

HARVESTING WHEAT.

Why will not farmers learn to cut their wheat while the kernel is soft? By doing so they would get more and much better flour, than they do to let it stand till it is fully ripe, and also avoid much of the risk of rain storms during the harvest, as it will bear more wet without injury than when ripe. L. D. CORLISS.

Oxford, N. H., Aug. 21, 1867.

CURES FOR CATARRH.

I see an inquiry for a cure for chronic catarrh, in your paper, which I think I can answer satisfactorily, though I am not an M. D., nor the son of an M. D. If "C. A. M." will smoke a pipeful of smoking tobacco, three times a day, in an ordinary pipe and swallow the smoke, then breathe it out of the nostrils, and continue it faithfully for two months I am confident the catarrh will leave him as it did me after being afflicted two years.

Ripon, Vt., Sept. 28, 1867. RUSTICUS.

REMARKS.—We think if the catarrh didn't leave after such treatment it must be a pretty tough customer. While our hand is in, we may as well give another "cure," and save somebody a doctor's bill. Take a teaspoonful each of sulphur and of tar, and after mixing them well together set fire to the compound and inhale the smoke; having first cleared the nose and head by the use of snuff, or salt and water.

COAL TAR FOR A ROOF.

I wish for the necessary information as to time and manner of applying coal tar to the roof of a barn which was built the present season, and covered with sawed fir shingles. The size of the building is 25x40. Roof rather steep. About what quantity will it need?

STEPHEN CHANDLER.

Fryeburg, Me., Sept. 23, 1867.

REMARKS.—We cannot answer these questions. Our impression is that it would be better to employ an experienced workman, than to attempt to do the job yourself.

CURE AND PREVENTION OF BOTTS.

Take of mullein roots (or roots and leaves, or leaves or the top in blossom) three quarts, dry or green; boil in two or three quarts of water, down to one quart, which will be black like coffee. Drench

the horse, and at once the cure is completed, with no harm to the horse. The medicine is slightly loosening to the bowels. To prevent horses having botts, give in feed of oats, meal or fine cut, two or three dried leaves of mullein, rubbed fine in the hands, once a week. That gathered in blossom is best. VAN DOORN.

Vermont, Oct. 1, 1867.

CATTLE STANCHIONS.

A writer, without name, in referring to my article on cattle stanchions in the FARMER of Aug. 17, says that I neglected to tell him how to construct them. I will reply by saying that the stanchions that I use are the Safford Patent.

Hope, Me., Sept. 30, 1867. A. L. W.

BLACK KNOT.

Mr. H. G. Allen, of North Bridgewater, Mass., informs us that he has been very successful in the treatment of the black knot on his plum trees by cutting the knots off carefully and applying to the wound a little spirits of turpentine.

CLUBFOOT.

This is one of the troubles which often discourage those who attempt to raise cabbages, &c. We were informed by a gardener, the other day, that by planting in hills where they are to grow, and throwing on a handful of ashes after covering the seed, he is not troubled with this disorder in his plants.

AGRICULTURAL ITEMS.

—Have you any implements rotting or rusting out in the weather?

—Barton, Orleans county, Vt., produced 1177 tubs or 62,562 pounds of butter during the months of August and September.

—A correspondent of the *Country Gentleman* says that farms can be bought now in Central Illinois, for about the figures of ten years ago.

—Including the permanent improvements of Mr. Mechi's farm, it is said the cost per acre is equal to $500.

—The quantity of sorghum grown this year in Ohio, Indiana and Illinois, is said to be much less than last year or the year before.

—Henry Daniels, of Williamstown, has a cow only 14 months and 27 days old, which has given birth to a large and healthy calf.

—The Agriculturist, Jucunda and other choice eastern strawberries fail to meet the expectations of Western cultivators.

—The *Journal of Horticulture* says that Gladiolus can be raised from seed, and perhaps better flowers be obtained than from imported bulbs.

—The *Prairie Farmer* says that one pint of strained honey mixed with two gallons of water, will make excellent vinegar, after standing three weeks.

—The Utica *Herald* of Oct. 8th, quotes the price of cheese from private dairies at 14 to 15c, from factories 14¼ to 16c, with some prime extra at 17c per lb., and says, "the quantity of fine cheese in the country is quite limited and prices for our best factories it seems to us must advance."

—A fat cow of Durham grade was recently slaughtered in London, which weighed when killed 1950 pounds, and yielded 340 pounds of rough tallow.

—It is reported that an agricultural society, somewhere in the State of New York, offers larger premiums for butter and cheese than it does for horse-racing.

—The grape crop along the lakes is good, but on the Atlantic coast from Maryland to Massachusetts there is great complaint of the fruit being late and much injured by the rot, in consequence of the unfavorable season.

—On the 22d of August, an ox belonging to Mr. Alvin Morse, of Newfane, Vt., was missed from his pasture. Nine days after he was found in a piece of woods with his head between two trees where he had remained for this time unable to obtain any food or even to lie down.

—Josh Billings, in describing the horse fair of the Billingsville Agricultural Society, says: "There was tew yoke ov oxen on the ground, besides several yokes ov sheep, and a pile of carrots, and some wosted work, but they didn't seem to attract enny sympathy. The people hanker for pure agricultural hoss-trots."

—A new grass is springing up in the Southern States. It appears to be a dwarf clover, is very thick set, covering the earth with a beautiful carpet of green. It is much relished by cattle, and is a complete exterminator of Bermuda, joint, sedge, and other grasses. In Middle Georgia it is very abundant and is attracting much attention.

—There is a tree standing on the farm of Levi Graves, in Leverett, Mass., that rises from the ground by two distinct trunks, standing a foot apart. Each trunk is more than a foot in diameter, and straight and well formed. They run up twenty feet or more, and then join in a solid single trunk, forming a beautiful top like any single tree.

—In his address at the late Pomological Convention at St. Louis, Hon. Marshall P. Wilder alluded to the fact that history informs us that "the planting of vineyards in Italy had so much increased about A. D. 85, that agriculture was thereby neglected; on which account Domitian issued an edict prohibiting any new vineyards to be planted in Italy, and ordered one-half of those in the provinces to be cut down."

—It appears that drought this year has prevailed over a wide extent of country. In the western part of New York it has been severe, while in the eastern and middle portion of the State there has been comparatively little rain since last July. In the dairy region the supply of after feed is much less than usual. The editor of the Ohio *Farmer*,

in a recent tour from Cleveland to Pittsburgh, found the farmers feeding hay to their cattle as in mid winter. A correspondent of the *Country Gentleman*, writing in central Illinois, says half the wells in the county are waterless, and pasturage is very short. This has caused a rush of cattle to market and brought prices down as low as 2½a3c per lb., live weight, for good thin steers.

—Italy continues to supply large quantities of cattle to France.

—In Florida, peaches will not grow. Where peaches end, oranges commence.

—A few years ago, a committee was appointed by the House of Commons, to examine and report as to a remedy for the hop louse, but could find none better than hand picking.

—Several capitalists of Dutchess county, N. Y., have recently purchased 1200 acres of land, on the Lake Shore railroad, between Dunkirk and Erie, for extensive vineyard planting. Germans from the Rhine districts are to be obtained as laborers.

—Just now the Kerry cattle are commended, because they thrive in cold climates and on little food, and give such rich milk. In England a Kerry cow is valued at $650. It is suspicious that fancy stock is always scarce.

—Mr. T. Jones, of South Hadley, Mass., who has three acres in strawberries, says in the *Homestead*, that after having tried more than twenty varieties he has settled down on the Wilson and Fillmore for the main crop, and the Early Scarlet and Triomph de Gand for early and late.

—Anxious to help the speculators in their blood-chilling stories of the drought, a western paper records the fact that in some parts of Illinois the drought is so severe that not only are the wells destitute of water, but the holes themselves have dried up.

—The cattle reporter of the *Prairie Farmer* says, "it will cost farmers 10 cents per lb., at the present price of corn, to make pork, and as they cannot reasonably expect to realize over $6a6.75 for live weights, it is to their advantage to sell their grain and send in their hogs, although but partially fattened.

—Having been often told that anything would do for seed potatoes, a correspondent of the *Rural New Yorker* planted four rows of twenty hills each, in the centre of his field with the following result:—

	Marketable	*Small.*
1 large potato in a hill yielded	67	24
4 small " " " "	53	37
4 cut " " " "	61	37
3 eyes only " " "	7½	13¾

—On opening the State Fair of Iowa, President Melendy, in the course of his remarks, said: "We do not desire a great overshadowing federal institution, which shall attempt to direct or control agricultural matters. We hang our hopes for agricultural progress in this country upon the common schools, the State agricultural colleges, the agricultural newspapers, and agricultural associations established so thickly throughout the country."

American Short Horns in the Royal Stables.—We recently noticed the arrival of Mr. H. O. Sheldon's shipment of New York Short Horns in England, and the fact that the animals were sent into quarantine. The statement is now made in the *Country Gentleman* that Mr. Tait, bailiff to her Majesty, has tendered to Mr. Page, who has these cattle in charge, the use of the royal stables at Windsor Park, and the privilege of offering them for sale in connection with the herd of the late Princess Consort, which was to be sold on the 16th of October.

We regret to learn that the farm buildings of Mr. Sheldon, at Geneva, N. Y., were recently destroyed by fire, with the loss of one of his Duchess cows and three calves.

From Dr. Holland's new Poem, "Kathrina."

A DAY IN AUTUMN.

The breezy days
Over whose waves my buoyant life careered,
Rolled to October, falling on its beach
With bursts of mellow music; and I leaped
Upon the longed-for shore; for, in that month,
My dear betrothed deferring to the stress
Of my impatient wish, had promised me
Her hand in wedlock.

Ere the happy day
Dawned on the world, the world was draped in robes
Meet for the nuptials. Baths of sunny haze,
Steeping the ripened leaves from day to day,
And dainty kisses of the frost at night,
Joined in the subtile alchemy that wrought
Such miracles of change, that myriad trees
Which pranked the meads and clothed the forest glooms
Bloomed with the tints of Eden. Had the earth
Been splashed with blood of grapes from every clime,
Tinted from topaz to dim carbuncle,
Or orient ruby, it would not have been
Drenched with such waste of color. All the hues
The rainbow knows, and all that meet the eye
In flowers of field and garden, joined to tell
Each tree's close-folded secret. Side by side
Rose sister maples, some in amber gold,
Others incarnadine or tipped with flame;
And oaks that for a hundred years had stood,
And flouted one another through the storms—
Boasting their might—proclaimed their pique or pride
In dun, or dyes of Tyre. The sumac leaves
Blazed with such scarlet that the crimson fruit
Which hung among their flames was touched to guise
Of dim and dying embers; while the hills
That met the sky at the horizon's rim—
Dabbled with rose among the evergreens,
Or stretching off in sweeps of clouted crimson—glowed
As if the archery of sunset clouds,
By squads and fierce battalions, had rained down
Its barbed and feathered fire, and left it fast
To advertise the exploit.

In such pomp
Of autumn glory, by the simplest rites,
Kathrina gave her hand to me, and I
Pledged truth and life to her. I bore her home
Through shocks of maize, revealing half their gold,
Past gazing harvesters with creaking wains
That brimmed with frui age—my adored, my wife,
Fruition of my hope—the proudest freight
That ever passed that way!

BANTAM FOWLS.

The Bantams, though extremely small in size are elegantly formed and beautiful birds. They are the Lilliputians of the poultry tribe; very domestic in their habits, and often making their nests in the kitchen, if permitted to do so. They require but little food, and will thrive when cooped up in a small yard, if supplied with dry ashes, sand and sunshine. Mr. Bement says they arrive at maturity early, are faithful sitters, good mothers, and will lay more eggs, though small, than any other variety. Still they must be considered rather as objects of curiosity than utility. But if "a thing of beauty is a joy forever," may not these pugnacious, active, pompous little creatures be ranked with those cheap amusements which please, occupy, and instruct the little ones of our households, though the more sedate heads of the family may prefer the stately Dorkings or Brahmapootras?

The large cut shows a common variety of Bantams. In the small cut is represented the Sebright Bantam, which is pronounced by

Mr. Bement as "the prettiest of all domestic fowls." He says one of the most remarkable characteristics of the Sebright cock is the total absence of both hackle and saddle feathers; he is also perfectly "*hen tailed*," that is, devoid of sickle-feathers; the principal feathers being straight and forming a square tail, like that of the hen, perfectly upright and not inclining to either side. The comb must be double, terminating in a well-formed point, while the legs and feet are blue, and wholly free from the least appearance of a feather. There are two distinct varieties, well known, one as the "Golden-laced," the other as the Silver-laced" Bantam. Every feather from the head to the tail of a well-bred Sebright is "laced" or bordered all round the edge with a line of pure black, about one-sixteenth of an inch in width.

The gait of a Sebright Bantam is the very extreme of self-esteem, vanity, and self-assurance, and when silently walking on a lawn in search of insects in the grass, or hurrying with the most agile and noisy impatience from the too near advance of your favorite dog to some friendly covert of evergreens, it is impossible to conceive a more lovely ornament to your grounds, or one that claims more general admiration and astonishment from those who thus see them for the first time.

COMPARATIVE VALUE OF FODDER.

We should like to know the comparative value, or ratio of value, of English hay, rowen, Hungarian grass, and green cut oats as food for milch cows. Also after cows are housed for the winter, how they should be fed? What quantity of hay, root crops, shorts, fine feed, oil meal or middlings or of either, should be fed to them daily? We rarely find a farmer who can tell us how much hay, in weight, a cow will ordinarily consume a day, either with or without other food. INQUIRER.

REMARKS.—The inquiries of our correspondent are searching—they go deep. We doubt whether the exact information he desires is attainable here, or in any other country; and yet, they are the very things we ought to know. Perhaps the *Massachusetts Agricultural College* will shed light upon them, when it is well under way. We find tables in the scientific books which may afford some gratification to the reader. One of them is prefixed by the remarks, that "in the case of the ox the daily waste or loss of muscle and tissue requires that he should consume 20 to 24 ounces of gluten or albumen, which will be supplied by any of the following weights of vegetable food:—

English hay	20 lbs.	Turnips	120 lbs.
Clover hay	16 "	Cabbage	70 "
Oat straw	110 "	Wheat, or other white grain	11 "
Pea straw	12 "	Beans or peas	6 "
Potatoes	60 "	Oil cake	4 "
Carrots	70 "		

If common hay be taken as the standard of comparison, then, to yield the same amount of nourishment as 14 lbs. of hay, experiments on feeding made by different persons, and in different countries, say that a weight of the other kinds of food must be given, which is represented by the number opposite to each article in the following table:—

Hay	10 lbs.	Carrots, (white)	45 lbs.
Clover hay	8 to 10 "	Mangold wurtzel	35 "
Green clover	45 " 50 "	Turnips	50 "
Wheat straw	40 " 50 "	Cabbage	20 to 30 "
Barley straw	20 " 40 "	Peas and beans	3 " 5 "
Oat straw	20 " 40 "	Wheat	5 " 6 "
Pea straw	10 " 15 "	Barley	5 " 6 "
Potatoes	20 "	Oats	4 " 7 "
Old potatoes	40? "	Indian corn	5 "
Carrots, (red)	25 " 30 "	Oil cake	2 " 4 "

Another statement is, that the generally nutritive value of different kinds of food has also been represented *theoretically*, by supposing it to be very nearly in proportion to the quantity of *nitrogen*, or of *gluten*, which vegetables contain. Though this cannot be considered as a correct principle, yet as the ordinary kinds of food on which stock is fed contain an ample supply of carbon for respiration, with a comparatively small proportion of nitrogen, these theoretical determinations are by no means without their value, and they approach, in many cases, very closely to the practical values above given, as deduced from actual trial. Thus assuming that 10 lbs. of hay yield a certain amount of nourishment, then of the other vegetable substances it will be necessary, according to theory, to give the following quantities, in order to produce the same general effect in feeding:—

Hay	10 lbs.	Carrots, (red)	35 lbs
Clover hay	8 "	Cabbage	30 to 40 "
Vetch hay	4 "	Peas and beans	2 " 3 "
Wheat straw	52 "	Wheat	5 "
Barley straw	52 "	Barley	6 "
Oat straw	55 "	Oats	5 "
Pea straw	6 "	Rye	5 "
Potatoes	28 "	Indian corn	6 "
Old potatoes	43 "	Bran	5 "
Turnips	60 "	Oil cake	2 "
Mangold-wurtzel	50 "		

If the feeder be careful to supply his stock with a mixture or occasional change of food—and especially, where necessary, with a proper proportion of fatty matter—he may safely regulate, by the numbers in the above tables, the quantity of any one which he ought to substitute for a given weight of any of the others—since the theoretical and practical results do not in general very greatly differ.

We have drawn these remarks mainly from Prof. Johnston's *Elements of Agricultural Chemistry*, as the nearest approach of anything we could find, as replies, to the above inquiries. Our correspondent has begun a good work; we wish he would continue it by making exact experiments with his stock the coming winter, and let us have the results in the spring. Who so well qualified as himself for this, now that he has the spirit of the matter in his mind, and is really desirous to know the facts in the case?

In addition to the foregoing, we copy the following results of careful and laborious experiments conducted under the direction of the Massachusetts Board of Agriculture by John Brooks and Moses Newhall, with the dairy on the farm of the State Reform School at Westborough in 1856. The details, as published in the Report of the Secretary of the Board, are very minute. Each animal, as well as the food it consumed and the milk it produced, was separately weighed, and the results given in elaborate tables, for which we have not space. It will be seen that English hay is put at $15 and meadow or swale hay and cornstalks at $10 per ton; shorts at one and a

half cents, and carrots at half a cent a pound, &c. Consequently, proper allowance can be readily made for the different values of these articles in different sections and at different times. The fact of the decrease of the cows in flesh when fed on coarse meadow hay and cornstalks seems to show that the value of these articles compared with English hay is usually placed too high.

Fourteen Cows--From Jan. 1 to 20.

5,085.60 lbs of meadow hay and stalks at ½c ₩ lb	$25 41
5,600.00 lbs carrots ½c ₩ lb	28 00
162.00 lbs shorts 1½c ₩ lb	2 43
Making the cost of keeping 14 cows 20 days	$55 84

The same cows gave, in 20 days, 3,570.40 lbs of milk, which cost 15.64c the gallon of 10 lbs. The food proved insufficient, and the 14 cows lost in 20 days 210 lbs in weight.

Ten Cows--From Jan. 30 to Feb. 9.

3,588.80 lbs meadow hay ½c ₩ lb	$17 94
4,000.00 lbs carrots ½c ₩ lb	20 00
500.00 lbs shorts 1½c ₩ lb	7 50
Cost of keeping 10 cows 20 days	$45 44

The same cows gave, in 20 days, 2 715.60 lbs of milk, costing 16.72c the gallon of 10 lbs. The feed proving insufficient the 10 cows lost in 20 days 244 lbs of their weight.

Eleven Cows--From Feb. 10 to 29.

3,100.60 lbs stalks ½c ₩ lb	$15 50
4,400.00 lbs carrots ½c ₩ lb	22 00
550.00 lbs shorts 1½c ₩ lb	8 25
1,010.00 lbs meadow hay	5 05
Cost of keeping 11 cows 20 days	$50 80

The yield of milk from these cows, in 20 days, was 3,767.40 lbs, costing 13.41c the gallon of 10 lbs. The cows gained 109 lbs in weight.

Fourteen Cows--From March 1 to 20

4,894.60 lbs of English hay, cut, ½c ₩ lb	$36 72
5,600.00 lbs carrots ½c ₩ lb	28 00
700.00 lbs shorts 1½c ₩ lb	10 50
560.00 lbs meadow hay ½c ₩ lb	2 80
Cost of keeping 14 cows 20 days	$78 02

These fourteen cows gave, in 20 days, 5,445.20 lbs of milk, which cost 14.32c the gallon of 10 lbs. The gain in weight was 809 lbs.

Sixteen Cows--From March 20 to April 9.

5,632.80 lbs meadow hay valved at ½c ₩ lb	$28 16
3,200.00 lbs carrots ½c ₩ lb	16 00
3,200.00 lbs ruta bagas ½c ₩ lb	16 00
1,920.00 lbs cob meal 1½c ₩ lb	24 00
Cost of feed consumed in 20 days	$84 16

The milk produced by these cows, in 20 days, was 6,058.20 lbs, which cost 13.89c the gallon of 10 lbs. 8 lbs of the hay were cut and mixed with 6 lbs of cob meal, and given in two feeds to each cow daily. The feed in this taial proved less nutritious than that consumed in the last, and the cows lost in weight 890 lbs.

Sixteen Cows--From April 10 to 29.

5,160.00 lbs English hay ½c ₩ lb	$30 70
1,600.00 lbs carrots ½c ₩ lb	8 00
1,600.00 lbs ruta bagas ½c ₩ lb	8 00
1,920.00 lbs cob meal 1½c ₩ lb	24 00
Cost of feed for 16 cows 20 days	$79 70

The same cows gave of milk, in 20 days, 5,591 lbs, which cost 14.25c the gallon of 10 lbs. 8 lbs of the hay were cut and mixed with the cob meal, and given twice a day. These cows lost 314 lbs in weight.

Sixteen Cows--From April 30 to May 19.

5,196.40 lbs English hay ½c ₩ lb	$38 97
1,600.00 lbs ruta bagas ½c ₩ lb	8 00
1,600.00 lbs carrots ½c ₩ lb	8 00
1,920.00 lbs Indian meal 1½c ₩ lb	28 80
Cost of keeping 16 cows 40 days	$83 77

The same cows gave, in 20 days, 5,786 20 lbs of milk, costing 14.47c the gallon of 10 lbs. Gain in weight 337 lbs.

The whole loss of weight made by the cows, in these seven trials, was 1.658 lbs; the whole gain was 1,255 lbs; leaving a balance of loss in the 140 days of 403 lbs. This loss is probably due to the change from green summer to dry winter feed. If so, it would appear that the feed consumed by the cows has been equal to sustaining them in the same condition they were in at the commencement of the 140 days' feeding. The average cost per day for feeding each cow in these trials of 140 days was 24.62c.

Sixteen Cows--From May 9 to June 8.

Feed was pasture grass only. They increased their milk in 20 days, 853.86 lbs, or a fraction over 2 66 lbs daily for each cow. Estimating pasture land at $40 the acre, and five acres to the cow, the cost of keeping each cow would be the interest and taxes on five acres of land, valued at $200.

Interest on $200 one year	$12 00
Taxes one year	1 00
Cost of keeping one cow half a year	$13 00

Thirteen dollars divided by the number of days in half a year, gives 7.15 cents the day for keeping one cow, and $22.88 for sixteen cows 20 days. These sixteen cows gave, in 20 days, 6,640.02 lbs of milk, which cost 3.46 cents the gallon of ten lbs. The gain in weight was 484 lbs.

Eighteen Cows--From June 8 to 28.

Eighteen cows gave 8,200.20 lbs of milk in 20 days —feed, pasture grass only. Cost of keeping, for 20 days at 7.15c ₩ day, $25.74. Cost of milk in this trial a fraction less than 3.20 cents the gallon of ten lbs. The cows gained in weight 17 lbs.

Twenty-three Cows--From June 29 to July 18.

Cost of keeping twenty-three cows at 7.15 cents per day, $32 89 for 20 days. The yield of milk of the same cows was, in 20 days, 9,257 lbs, which cost 3.56 cents the gallon of ten lbs. The twenty-three cows gained in weight 210 lbs.

Twenty-two Cows--From July 18 to Aug. 7.

Twenty-two cows gave in 20 days 7,197 lbs of milk. Feed, pasture grass, only. Cost of keeping twenty-two cows 20 days, estimating pasture grass as in former trials, $31.46, making cost of milk in this trial 4.37 cents the gallon of ten lbs. The cows gained 61 lbs in weight.

Twenty-one Cows--From Aug. 8 to 28.

Twenty-one cows gave daily 309.37 lbs of milk. In 20 days their yield was 6,187.40 lbs. The feed was pasture grass, and 20 lbs each cow daily, of green corn fodder. The corn fodder was considered by the Committee to no more than make up for the defficiency, occasioned by the dry weather, in the pasture feed, and the cost would probably be no more than grass. So the cost of keeping would be $1.43 each cow, for 20 days, or $30.03 for 21 cows 20 days, making the cost of the milk in this trial 4.85 cents the gallon of ten lbs. The cows gained 142 lbs in weight.

Twenty-one Cows--From Aug. 28 to Sept. 16.

In this trial the twenty-one cows gave, daily, 279.79 lbs of milk. Their yield for 20 days was 5,595.80 lbs. The feed was pasture and twenty lbs each, daily, of green corn fodder, the same as in the last trial. The cows were the same, and their feed for 20 days cost $30.03, the same as in the last trial, but there was a falling off in milk, and the cost in this 20 days is 5.36 cents the gallon of ten lbs. The cows gained in weight 485 lbs.

Sixteen Cows--From Sept. 17 to Oct. 6.

The yield was 187.41 lbs of milk daily, equal to 3,748.20 lbs in 20 days. Cost of keeping, estimating the aftermath to be more than equal to good pasture, $1.43 each cow for twenty days, making $22.88 for sixteen cows 20 days. Cost of milk, 6.14 cents the gallon of ten lbs. Loss in weight 314 lbs.

Fifteen Cows--From Oct. 7 to 27.

Fifteen cows gave in this trial 186.69 of milk daily. In 20 days their yield was 3,733.80 lbs. Cost of feed equal to good pasture, $1.43 for each cow, 20 days; for fifteen cows, 20 days, $21.45. Cost of milk, 5.72 cents the gallon of ten lbs. The cows gained 257 lbs.

Sixteen Cows--From Oct. 27 to Nov. 16.

The sixteen cows, in this trial, gave 146.40 lbs of milk daily. In 20 days their yield was 2,928 lbs. The cost of keeping, for each cow, was the same as in the last trial, making, for sixteen cows, $22.88 for 20 days. Cost of milk, a fraction over 7.81 cents the gallon of ten lbs. The gain of weight was 433 lbs.

Eleven Cows--From Nov. 16 to Dec. 6.

Eleven cows, in this trial, gave, daily, 100.08 lbs of milk, or in 20 days, 2,001.60 lbs. The same cows consumed, the fifteen first days, while at grass, 1,320 lbs of corn stover, and in the five days in the barn, they consumed 1,039 lbs of corn stover. In 20 days they consumed—

2,379.00 lbs corn stover, estimated ½c ₩ lb	$11 89
15 days in pasture, estimated 7c ₩ day	11 55
Cost of keeping eleven cows 20 days	$23 54

Cost of milk, in this trial, 11.71 cents the gallon of ten lbs. Gain in weight 86 lbs in 20 days.

Seven Cows--From Dec. 6 to 26.

Seven cows, in this trial, gave daily, 61.01 lbs of milk; in 20 days their yield was 1,200.20 lbs. They consumed—

2 754.00 lbs husks and corn stalks ½c ₩ lb	$13 77
2,800.00 lbs roots (⅓ carrots and ⅔ ruta bagas,) ½c ₩ lb	14 00
Whole cost of keeping seven cows 20 days .	$27 77

Cost of milk in this trial, 22.75 cents the gallon of ten lbs. Loss of weight in 20 days 38 lbs.

Recapitulation of the Eighteen Trials.

Number of days embraced in all the trials . . .	360
Average number of cows milked daily	15.72
Whole gain in weight of all the cows	3,430
Whole loss in weight of all the cows	2,010
Balance of gain	1,420
Average milk daily from each cow, in lbs	15.84
Total flow of milk from all the cows in lbs . .	89,643.23
Total cost of feed of all the cows	$759 30
Total cost of feed ₩ gallon of milk of ten lbs . . .	08.47
Daily cost of keeping each cow in barn	24.30
Daily cost of keeping each cow at pasture	07.15
Daily cost, five days in barn, fifteen in pasture . .	10.65
Daily cost of keeping each cow during all the trials	13.41
Average number of days after calving	144.11

FRANCE A WHEAT COUNTRY.

According to the *Revue des Economistes*, the entire extent of surface appropriated in France to the cultivation of wheat, is two thousand eight hundred leagues. Of every hundred acres appropriated to cultivation in that country, forty are devoted to this grain. It is asserted that the quantity of wheat produced in France exceeds the aggregate product of the same grain in the British Isles, Sweden, Poland, Holland, Prussia and Spain. The annual consumption of wheat per head, on an average, in France, is between six and seven bushels; in the British Isles, between five and six bushels; in Spain, between four and five; in Holland, between two and three; in Prussia much less, and in Poland and Sweden comparatively little.

Spain, next to France, is the greatest wheat growing country in Europe. Her soil is almost equally as fertile, and abounds in those mineral ingredients upon the presence of which in the soil, the success of the wheat crop is in a great measure found to depend.

In this country, the cultivation of wheat *on old lands* is often found less profitable than some other common crops. As most of the mineral ingredients requisite for the vigorous and healthy development of the plants have been exhausted by previous crops, the straw, as well as the grain, suffers for want of the needed aliment, and is, of course, imperfect in its structure, and consequently liable to disease.

By liming old lands, or dressing them liberally with ashes, in conjunction with a moderate dressing of putrescent animal or vegetable manures, they may be made to produce good wheat and at small expense. The action of the lime and ashes, if supplied in sufficient quantities, tends to render soluble the otherwise insoluble phosphates contained in the soil, and also to hasten, to a considerable extent, the fermentation of insoluble humus. Silex, or the earth of flint, so essential in the formation of wheat straw, is likewise decomposed and rendered susceptible of appropriation and assimilation by the action of both mineral and vegetable alkalies—lime and ashes.

For the New England Farmer.

CHEMICAL TERMS.---No. V.

Sulphur is an article familiarly known. It is very combustible. At a temperature a little above that of boiling water, it is melted and converted into a brown fluid. When in this fluid state, it is easily crystalized. If sulphur is heated to about four times the temperature of boiling water, it boils and is converted into a brownish vapor,—sulphur fumes,—thus showing that it is volatile. If these fumes are conducted through a tube into a jar, which is kept cold by water or ice, they are condensed in the form of a soft yellow powder, known as flowers of sulphur. This process by which a volatile substance is evaporated, and again condensed into a solid is called sublimation. In this way sulphur is purified from the earthy matters which are found with it in its native beds. These, not being volatile, are left behind after the process of sublimation.

If sulphur be heated in the open air, or touched with a red hot body, it burns with a blue flame. During this process, one part of sulphur unites with two parts of oxygen, and forms a gas, called sulphurous acid. Then if one part more of oxygen be added to this gas, it becomes a liquid, the common *sulphuric acid*, or oil of vitriol, as it is called, from its heavy oily consistence. The weight of common concentrated sulphuric acid is to water as 184 to 100. Sulphuric acid is very important in the arts and in agriculture. It is manufactured on a large scale, by converting sulphurous acid

gas, by means of nitric acid and steam, into sulphuric acid, which, as first obtained, is largely diluted with water from the condensed steam. This is afterwards evaporated until the liquid becomes of the desired density. It is difficult to expel all the water, and the concentrated acid of commerce contains three ounces of water in a pound. Sulphuric acid has a strong affinity for water, and if allowed to stand exposed to the air will attract water from the air, so as to become perceptibly heavier every day.

Sulphuric acid is a chemical agent of great power. It combines with the oxides of most metals, forming with them salts, which are called sulphates. Thus, with iron, it forms sulphate of iron or copperas; with copper it forms sulphate of copper, or blue vitriol; with zinc, sulphate of zinc, or white vitriol. With the alkalies it also forms salts; as with lime, sulphate of lime or gypsum, or common plaster; with magnesia, sulphate of magnesia, or Epsom salts, &c. All these sulphates are more or less soluble in water. Hence we see that this acid combines with various earths and converts them into sulphates, thus rendering them soluble and capable of being absorbed by the roots of plants. It is in this way that it becomes a fertilizing agent of much power. When this acid is applied directly to the soil, it should be copiously diluted with water. It is said that one pound mixed with one hundred pounds of water will destroy grass and weeds in alleys and walks; and that when applied directly to the soil as a fertilizer, one pound should be diluted with one thousand pounds of water.

Potash is found abundantly in the vegetable and mineral kingdoms. It is also found in the animal kingdom. It is usually obtained from the ashes of wood, by leaching, and evaporating the lye or solution. Ashes consist of a soluble and insoluble portion. The soluble part is made up of carbonate of potash, sulphate, phosphate and silicate of potash, and the chlorides of potasium and sodium. The insoluble part consists of carbonate and subphosphate of lime, alumina, silica, oxidized iron and manganese, and some carbonaceous matter that has escaped combustion. The ashes are leached in wooden vessels. Some lime is usually added to take up the carbonic acid. Water is then added, which dissolves the soluble portions, and is drawn off at the bottom. The lye is evaporated in iron kettles or pots; hence its name, pot-ash. When it is reduced to the consistence of a thick syrup, a strong heat is applied by which the combustible impurities are burned out. When cold it congeals into cakes. This is the common potash of commerce.

Different plants, and the different parts of the same plant, yield different proportions of potash. It is only in the juices that the vegetable salts reside. Hence the more succulent plants, and the more succulent parts of plants, yield the greatest amount on burning. Herbaceous plants yield more than shrubs, and these more than timber. Twigs and leaves yield more than solid wood. Plants that have arrived at maturity yield more potash than at any previous period. One thousand parts of the ashes of oak wood yield about two per cent. The bark of oak twigs, 4.20; vine branches, 5.5; corn stalks, 17.5; bean stalks, 20.0; sunflower, 20.0; stems of potatoes, 55.0. Feldspar contains about 12 per cent. of potash, and mica about 8. These are important ingredients in granite. By the action of the weather, granite is crumbled and decomposed, and its elements are mixed with the soil, and brought within the reach of the roots of plants.

Potash has a caustic burning taste. It has a strong affinity for water, and on exposure to the air absorbs water, and grows moist, and finally liquid. It is soluble in water. It combines with fats and oils, and forms soaps. By heat, it combines with silex and forms glass. Those vegetables, the ashes of whose stems and leaves yield the largest amount of potash, as vines, corn, beans and potatoes, require constant supplies of potash in the soil. Potash readily combines with all the acids, forming salts, which are of great use in medicine and the arts,—bitartrate of potash or cream of tartar. Bicarbonate, or saleratus, and nitrate or saltpetre, are well known in domestic use.

Concord, Mass., Oct. 10, 1867. R.

For the New England Farmer.

SAVING SEED.

The following report of the discussion of the question, "*What seed shall we save, and how shall we save it?*" by the Irasburg, Vt., Farmer's Club, Sept 23, is furnished for the NEW ENGLAND FARMER by the Secretary, Z. E. Jameson, Esq.

J. B. Fassett, opened the discussion by remarking that, according to his idea, the question is, shall we save our seed of wheat, oats, corn and potatoes out of the mass of the year's produce, or shall we take special care and labor to save the best? He believed it was as important to save the best of our field crops for seed as it was to save the best calves to raise. He believed if a man makes a practice of planting and sowing inferior seed he will run out his crops; but with care he thought we could improve in every department,—in horses, cattle, vegetables and small grains.

A. Jameson said it has been his object to take pains in saving the best seed of his corn, wheat, and oats. He runs his grain through the fanning mill and blows out all light kernels. He also washes his wheat in salt brine which floats out light seed.

He had sowed wheat every year for over forty years. Some farmers left off sowing wheat because of the weevils,—raised oats to sell and buy flour; but he preferred to raise wheat. He always intended to sow wheat where corn was grown the year before. Last

year he had a good crop, about 25 bushels on an acre. He sows the "Scotch Fife" it does not lodge on rich ground. A heavy growth of straw will not produce more than the seed. As to potatoes, when he began farming he bought a bushel, cut them fine, planted, and raised 50 bushels from one of seed. He has tried several kinds, and they gradually run out. Since the rot, the California yields the best with him of any kind.

G. B. Brewster said he thinks we agree in the saving of seed. Poor seed gives a small plant and feeble growth. He remarked, I see some of the members have brought several kinds of potatoes here to-night. I think it wrong to raise several kinds. If planted side by side they will run out and mix.

S. Flint had improved his potatoes by planting large ones, and believes planting small ones will decrease the crop.

O. M. Wells said that fifteen years ago he got a kind of potato that he liked, and he made a practice of saving in the fall enough of the large potatoes for seed and they do as well now as ever. But he let some of his neighbors have these potatoes, who ate the largest and planted the smallest, and theirs have run out.

J. B. Clement had raised this year twelve bushels of Gold Drop wheat, from one bushel sown. He was anxious to know if it is beneficial to change seed; that is, to send off and get seed of the same kind as we have, but raised on different soil.

Z. E. Jameson did not think it advisable to change seed in that way, but he approved of changing poor for good seed. The men of whom we get this good seed do not change seed but save it with care. We should imitate their example. It is also beneficial to change and get new varieties of seed whenever new varieties are produced, by accident or design, that in hardiness and productiveness surpass what we have hitherto raised. Potatoes, especially, differ much in quality. But he thought they do not mix more than a maple tree would mix with a hemlock. Plants mix through the blossom, not the root.

G. B. Brewster was well satisfied that oats changed from hill to valley, and from valley to hill do better, and has seen trials that prove the fact to his own satisfaction.

Wm. L. Jameson had taken pains to obtain oats raised on sandy land and sowed them on clayey soil, but could see no difference between them and those from seed of his own raising, when sown side by side, either while growing or after being threshed. He had changed seed corn, but believed the improvement was in the cultivation and saving seed, rather than in the mere change.

G. B. Brewster asked, Why do we have to send west for seed wheat.

J. B. Fassett replied, Because this is not a natural wheat country. Wheat deteriorates here; there it does not. He did not believe that Mr. Jameson could raise his seed 20 years.

A. Jameson remarked that when he came here, between forty and fifty years ago, this was as natural a wheat country as one could desire. He could raise wheat as easily as oats. Wheat was 75 cts. to $1 per bushel. Merchants took it in pay for goods and sent it off. I used to get 20 or 30 bushels per acre, and rye the same. But weevils came, and farmers had to stop raising it, although he continued to sow an acre or two. Sometimes he got six bushels, sometimes ten. Now we are more sure of a crop. He once sowed three pecks of rye and harvested three pecks inferior to the seed. When a young man he worked in York State, and the farmers then thought it paid to send to the white oak openings for seed.

G. B. Brewster would say that we now raise more bushels per acre than they do in the West. If a man in Wisconsin had raised a piece of wheat like mine we should have heard of it before now. In Chittenden County they raise good winter wheat. One man in this county has raised winter wheat as good as the western white wheat.

O. M. Wells said, from a number of experiments, he finds it a benefit to get potatoes and oats raised on different soils. He has tried it three or four times. He had raised of wheat at the rate of 25 bushels per acre.

Wm. L. Locke, Jr., said that, according to reliable reports, Vermont yields as much wheat per acre as any State, with one or two exceptions.

N. H. Stiles thought It is an error for a farmer to go to his heap of grain and take the average for seed; full of foul seed, it may be, and many imperfect seeds. He should sow the best and most perfect grain. There may be cases where it would be an advantage to change seed, but there are more cases where farmers would do well to save the best of their own raising.

Capt. E. Grant, did not intend to have said anything, but Mr. Jameson's remark of three pecks of rye put him in mind of a crop of wheat he once raised. It was on new land and came up well, headed out and got ripe. He was sick when it was harvested and hired it done. In the winter he threshed it out, and after working about three days cleaned it up and got about three pecks of mouse manure!

At this meeting of the club J. B. Clement exhibited half a bushel of extra onions; J. B. Fassett the product of two hills of Jackson White potatoes, and S. Flint, 17 large ones from a single hill of same variety; Wm. Lock specimens of Jacksons and Garnet Chili; Z. E. Jameson, one hill each of Early Goodrich, Garnet Chili, Cusco, Rusty Coat and Orono. Potatoes yield fairly in this section.

Z. E. J.

The best crop of rice raised in Georgia this year was put in by two men from Ohio. There are 200 acres, and the estimate is 60 bushels to the acre.

Ladies' Department.

PUT UP THE BARS.

After the milking was over,
Annie would follow the cows
Half a mile down to the clover,
And turn them in to browse.

Neat little figure is Annie,
Handling the bars in the lane,
Letting down ever so many
Just in the sunlight's wane.

Wild roses blooming beside her,
Match not her cheek's lovely red;
And the leaves trying to hide her,
Dance at her musical tread.

Witching curls peep from her bonnet—
Peep like bright birds from their nest!
And the heart—happy who won it!
Beats with a gentle unrest.

Lips may be humming a ditty,
And faces may show unconcern;
But secrets there are—what a pity
That some are too easy to learn.

Now, while the robins are nesting,
Why does she wait in the lane?
Though if white arms need a resting,
No one, of course, could complain.

Lights in the farm-house are gleaming,
And bars must be laid in their place.
But little Annie stands dreaming.
A blush on her beautiful face.

Is it late? Not that she cares now;
Ah! merry eyes, mild and brown,
Could you not tell why she wears now
Just the least mite of a frown?

Over the path by the hillside,
Some one would wander by night;
Some one who came from the mill-side,
Lured by two eyes that were bright.

Meadow and valley grow stiller,
Under the earlier stars;
Would it be strange if the miller
Helped Annie to put up the bars?

HOUSEHOLD ECONOMY.

CONTRIBUTED FOR THE NEW ENGLAND FARMER.

Breakfast.

HOW ONE WOMAN PREPARES FOR IT.

Shall I tell those housewives who look with interest adown the column of "domestic receipts," in the NEW ENGLAND FARMER,—as it comes weekly laden, as it inevitably does, with good things, "both new and old"—how they can *economize*, and give their husbands and sons and brothers, a nice cup of coffee?

First, you can *mix* your coffee, equal parts—Java and Rio—*scorch* it (not *burn* it) a nice dark brown,—it is better to scorch it often, as often as every day or two.

When you get ready to make your coffee for breakfast, have ready some scorched (*not burnt*) molasses—perhaps two table-spoonfuls, set on the stove, in a tin plate or dish, and boiled down to candy, and *scorched*. Put this into the coffee-pot when you fill it up for the table. You will need no more than two large table-spoonfuls of ground coffee, with the scorched molasses, for four persons, and if you do not let it boil more than *five minutes*, and put in a little fish-skin, to settle it, I can warrant you a most delicious cup of the coveted beverage, *economically cooked*.

And, with all, some nice *breakfast cakes*. Make your cakes of Indian meal three-fourths, of flour one-fourth. Take new milk, if you have it, if not, water, with a *little shortening*; mix the night before, with a little yeast; fry in the morning, as griddle cakes, small or large, as you choose, eat with butter, or maple molasses, or sweetened cream. A little saleratus must be added in the morning. MRS. VERMONT.

Putney, Vt., Sept. 16, 1867.

REMARKS.—Much obliged. Shall be pleased to hear again from Mrs. V. ED.

Good Yeast.

To one cup grated potato pour one quart boiling water. Add one-half cup sugar and one-half cup salt. Also, when cooled till a little more than milk warm, one cup of yeast. Put in a warm place to rise. Keep in a jug in the cellar.

Bread.

To a quart of warm milk or water stir in flour to make a thick batter, and add one teacupful of yeast. Put in a warm place to rise. When risen stir in flour sufficient to knead and make in loaves. Set them by the stove, and bake soon after they begin to rise.

Breakfast Cakes.

One cup and a half of flour, one cup and a half of Indian meal, one table-spoonful molasses, one egg. Two teacupfuls sour milk or buttermilk, in which dissolve one teaspoonful saleratus. Bake in the oven.

Coffee Cake.

One cup sugar, one cup molasses, one cup butter, one cup strong coffee, two eggs, cream tartar and saleratus, one teaspoonful each. Cloves, cinnamon and nutmeg, raisins or currants, and citron *if you can afford it*; six cups of flour. Will make two good-sized loaves.

Cookies.

Two cups sugar, two-thirds cup butter, three tablespoonfuls milk, one-half teaspoonful saleratus, just flour enough to roll thin. Roll sugar on before cutting them out. Bake in a quick oven.

Somerset, Oct. 2, 1867. M. P. B.

DOMESTIC RECEIPTS.

An Easy Chair.

A delightfully easy sewing chair can be made in a few hours from an old cane seat chair, from which the canes have been broken away, by sawing off the front legs about two inches, the back ones three or four; tack a bit of old strong carpeting, canvas, or something of the kind across the seat; make a curtain of an old small-figured dress

or of pretty print, fasten it to fall around the sides of the chair, fit a cushion to the back and one to the seat, cover it with the same, and you will have a comfortable and pretty chair in which you can *rest* while you work. This fashion of chair—in the particular of having the seat slope backwards a little was the invention of a friend of mine while suffering from a prolonged illness. Rocking chairs did not suit; she grew tired in them even faster than in an ordinary chair, and lounges were no better, while in this chair, manufactured under her superintendence, by a brother, she found just what she desired. Chairs and rocking chairs, as ordinarily made give no support to the back below the shoulders, and thereby tend to make a person round-shouldered by throwing them forward; a chair made in this way, on the contrary, allows a person to sit, giving support to the small of the back, in which case the shoulders will look out for themselves, and instead of being placed in an unnatural position with the support in the wrong place entirely, you will find yourself just right in all respects and will rest in your chair almost as well as in lying down.—*A Farmer's Daughter, in Vermont Farmer.*

Home-made Mats.—A lady correspondent of the Vermont *Farmer* gives the following directions for making mats from the smallest bits of cloth left after cutting out clothes, or preparing the materials for rag carpets. Pieces over an inch square are too large, so it can easily be seen that this way of making rugs will use up the pieces, otherwise of no account except for the rag-bag. These little bits must be strung on a cord, the edges being ravelled out so as to present a soft, fuzzy appearance and wound and sewed like the braids in a braided mat, it will be difficult to distinguish it from chenille work. In regard to colors, you must consult your own taste. The style called hit-or-miss, in which you use all colors indiscriminately, as they are most convenient, has often a very good effect, if plenty of bright colors are used; in any other case it is too apt to have a dingy look. Decided contrasts or shades of the same color are better in mats of this kind.

How to Bake Apples.—Bake without breaking the skin. Bake from three to five hours. When the pulp is perfectly tender, break the skin; if that is silken, like the cuticle of the hand, you have your fruit done. If you break the skin by baking, the heat and moisture will escape, and your apple will dry. The peel prevents evaporation, and is a good conductor of heat. Bake on paper, and there will be no dishes spoiled or needed to be washed.

Green Tomato Pickle.—Cut in thin slices one peck of green tomatoes, sprinkle them with salt, and let them stand a day or two; slice ten or twelve small onions; mix together one bottle or small tin box of mustard, half an ounce of mustard seed, one ounce of cloves, one ounce of pimento, and two ounces of tumeric. Put in the kettle a layer of tomatoes, then one of onions and spice, till all are in. Cover it with good vinegar, and let it simmer till the tomatoes are quite clear.

FLOWERS AND VINES IN HOUSES.

There are many beautiful botanical experiments which may be conducted in the house during winter, which are not embraced generally in the list of flowers and vines in our parlors and windows.

How many of our fair readers have the beautiful vine of the sweet potato running over their mantel-shelf! This pretty sight can be enjoyed by placing a sweet potato in a tumbler or other glass vessel, filled with water; passing a pin through the tuber so as to keep the lower end from one to two inches from the bottom of the vessel. Keep on the mantel-shelf, in a warm room, and every day give it the sun for an hour or two, and in a few days rootlings will begin to appear, aiming for the bottom of the vessel, and in two or three weeks the eye will begin to shoot and rapidly grow and run upon suspended twine or any little trellis-work prepared for it. The *dioscorea batatas* is the prettiest for this purpose, when it can be obtained.

The "Morning Glory" can be propagated in parlor windows, where there is some sun, to perfection during winter; it flowers with its natural colors, and the delicate little vine can be made to run over the window. A hanging vase is the prettiest for this.

Suspend an acorn by a cotton thread so as nearly to touch the water in a glass vessel, (a hyacinth glass is perhaps the best,) set upon the window or mantel, and let it remain there for eight or ten weeks, more or less, without being interfered with, except to supply evaporation of the water, and the acorn will burst, and as it throws a root down into the water, a sprout or stem will be sent upward, throwing out beautiful little green leaves; thus giving you an oak tree, in full life and health, within your parlor!

There are many of the mosses which can be very successfully grown in the house through the winter, and with the foregoing afford an interesting and refined enjoyment for the feminines of a family, and a real pleasure to all who have a taste for the beautiful to witness. We trust to see a greater inclination on the part of the ladies to introduce into their houses this most agreeable addition to their domestic pleasures.

CANNING FRUIT.

Like many others, I tried, again and again, to seal fruit cans so as to keep the fruit without moulding upon the top. I was particular in following the printed directions in general use, but found that my cans, when cold, would not be more than two-thirds full, and in a few days a white mould appeared upon the top. I finally appealed to a friend who, I knew, canned large quantities for her own use. She showed me fruit over a year old, quite fresh, the cans full, and no mould. I at once adopted her plan, which I have since followed with great success. I have no interest in the manufacture of cans, and believe that every one should do his own advertising, but I prefer that kind in which you have only the can, glass cover and rubber to use. Fruit can be kept just as well without, as with sugar; and those sealed up for pies are better without any, as they will retain their flavor far better. Brass kettles should never be used. Tin pans or kettles lined with porcelain, so as to preserve the most perfect flavor of the fruit, are the best. While my fruit is being scalded, I put a gill of cold water in each can, and fill up with hot water, putting the covers and rubber also into hot water. The fruit need not be cooked—only heated to the boiling point—unless in preparing pears or quinces, or some other hard fruits, that may require more cooking, and then only just so that a straw may be passed through, always being careful to have juice enough to cover the fruit. As soon as boiling hot, empty a can and fill; then another,

or as many as can well be attended to. Let the cans stand open until you can comfortably bear the hands upon them. Meanwhile more fruit may be heated. Cut thick writing paper in round pieces the size of the top of each can, and when the contents of the cans are cooled, slip a piece over the top of the fruit in each can, and at once fill up on top of the paper with boiling juice (saved for the purpose), and put on the covers as soon as filled, according to the directions given. I often seal up cherries and tomatoes, only for winter use, in one gallon stone jars that are small at the top, prepared just the same as for glass. Leave off the covers, seal with melted resin, adding a little tallow. Try it on a piece of cloth; if too brittle add more tallow, and *vice versa*. Cut a paper also for the top of the jar, just so it will come over the edge, and dip a piece of thick cloth into the resin, only upon one side, spread over the jar and tie down; now, with a spoon, dip and spread on the hot resin, until entirely covered, pressing down the sides with the hands dipped in cold water. When cold, if the jar is air tight, the cover will be depressed a quarter of an inch or more. But if it is level, then you must seal it over again. Those who can common sour cherries will find them greatly improved by first draining off all the juice, and then covering them with water —scald and drain off, and cover over again for sealing, canning, preserving or drying.—*Farm and Fireside.*

PARASITES IN BIRDCAGES.

Many a person has watched with anxiety and care a pet canary, goldfinch, or other tiny favorite evidently in a state of perturbation, plucking at himself continually, his feathers standing all wrong, always fidgetting about, and in every way looking very seedy. In vain is his food changed, and in vain is another saucer of clean water always kept in his cage, and all that kindness can suggest for the little prisoner done; but still all is of no use, he is no better—and why? because the cause of his wretchedness has not been found out, and until it is other attempts are but vain. If the owner of a pet in such difficulties will take down the cage and cast his or her eyes up to the roof thereof, there will most likely be seen a mass of stuff looking as much like red rust as anything, and from thence comes the cause of the poor bird's uneasiness. The red rust is nothing more nor less than myriads of parasites infesting the bird, and for which water is no remedy. There is, however, a remedy, and one easily procurable in a moment—fire. By procuring a lighted candle and holding it under every particle of the top of the cage till all chance of anything being alive is gone, the remedy is complete. The pet will soon brighten up again after his "house-warming," and will in his cheerful and delightful way thank his master or mistress over and over again for this, though slight, to him important assistance.—*Land and Water.*

THE FASHIONS.—The fiat has gone forth, and Fashion declares that gentlemen are to wear pantaloons "as tight as possible," and ladies the smallest crinoline and the narrowest dresses. Most fashionable color for pantaloons, green; for dresses, brown. Business and morning coats will still be worn short, the variety with short tails prevailing; so also walking and even morning dresses will continue to be worn short. Eugenie has adopted them, and that settles the question, if there was any doubt about the matter before. Gentlemen will wear hats with low crowns and broad brims; and ladies will wear—what they please, provided it belongs to the *Brown* family. Full dress vests for gentlemen will be low in the roll, and have but three buttons; ball dresses will also be low "in the roll" if we may be allowed the expression—and ladies will exhibit as many buttons on their attire as the material will admit. Dress shirt bosoms will not be plaited but highly embroidered; the same may be said of the silks and satins designed for grand toilets. Both sexes seem to agree in adopting the coat sleeve. On the whole, there is quite as much similarity in the latest fashions for ladies and gentlemen as could be expected.